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THERAPEUTIC HANDBOOK

OF THE

UNITED STATES PHARMACOPŒIA

BEING A CONDENSED STATEMENT

OF THE

PHYSIOLOGICAL AND TOXIC ACTION, MEDICINAL VALUE, METHODS OF ADMINISTRATION AND DOSES OF THE DRUGS AND PREPARATIONS

IN THE LATEST EDITION OF THE

UNITED STATES PHARMACOPŒIA

(APOTHECARIES' AND METRIC SYSTEM)

WITH SOME REMARKS ON UNOFFICINAL PREPARATIONS

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BY

ROBERT T. EDES, A.B., M.D. (HARVARD)

FELLOW OF THE MASSACHUSETTS MEDICAL SOCIETY
FELLOW OF THE AMERICAN ACADEMY OF ARTS AND SCIENCES
LATE PASSED ASSISTANT SURGEON U. S. NAVY
PROFESSOR OF MATERIA MEDICA IN HARVARD UNIVERSITY
PRESIDENT OF THE AMERICAN NEUROLOGICAL ASSOCIATION
CORRESPONDING MEMBER OF THE NEW YORK THERAPEUTICAL SOCIETY
ONE OF THE VISITING PHYSICIANS AT THE BOSTON CITY HOSPITAL

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PREFACE.

A National Pharmacopœia should consist of a catalogue of all the drugs and preparations of acknowledged necessity and approved usefulness likely to be needed by the medical practitioner of any portion of the country. Such a catalogue must include, as its principal and largest portion, the drugs employed over the whole civilized world, together with many others, indigenous or easily obtained in the country for which it is intended.

It cannot, however, be denied that fashion plays no inconsiderable part in determining the choice and continued use of remedies. The working Pharmacopœia of any one practitioner, however, will, of course, include but a small portion of the whole, and will almost certainly not coincide with that of his next-door neighbor, and will differ widely from that of a man educated in a different school or at a different time. The mental peculiarities, as regards the desire for novelty or the dislike of change, and the accidental experience of each man will determine his choice of drugs; but it is very safe to assume that the sum of the drugs used by individual practitioners of the United States would fill a much larger book than the present or any former edition of the Pharmacopœia. The essentials, however, may be brought within much narrower limits.

A great part of the Pharmacopœia is made up of drugs and preparations, which, so far as their action is concerned, are really duplicates. One of the most serious difficulties which lie in the way of the student of materia medica is the great amount of ground which must be gone over, with so few points from which a general view can be ob-

tained, since all classifications are avowedly, and for a long time to come must be, very imperfect and unsatisfactory. A working knowledge of drugs is to be obtained in the short time usually allotted to a medical education only by neglecting a very large part of the Pharmacopœia, and this omission is seldom fully supplied in after-life.

The ideal Pharmacopœia, compact but comprehensive, exhibiting all that drugs can do for the prevention or cure of disease or the relief of suffering, but encumbered with no inert, useless, or injurious agents, is yet far off. Its advent depends on the progress of chemistry, which shall contribute definite principles instead of crude and complicated "simples;" upon that of physiology, which shall determine their action; and upon that of pathology, which shall analyze diseases into their essential symptoms and show how far these may be advantageously controlled or modified.

At present there stands upon one side of the Pharmacopœia a list of drugs the claims of which to admission are as yet doubtful, and a large portion of which will fall into merited neglect, while others will prove to be merely substitutes for those already in use, and a very small minority will prove to be really valuable additions. Upon the other side is a much larger list of the drugs which have been useful, and would still have essentially the same action as many remaining, but have been dropped merely as superfluous or comparatively inconvenient. The Pharmacopœia might be spoken of as crystallized materia medica, and the list of "new remedies" as a turbid solution from which it is hoped that valued gems may crystallize out. We must not forget, however, to look at the waste-heap on the other side, and see how many such gems have already been thrown away.

The present edition of the Pharmacopœia can justly claim to be as nearly abreast of progress in pharmacology as even the mildest conservatism would permit, and there are but few omissions which any but the most eager seeker after novelty can deplore. It is certainly to be hoped that the medical profession may sufficiently familiarize themselves with its contents to become aware how well their demands are therein provided for, and how unnecessary it is that they should

undergo the humiliation of seeing their patients, whose wants they alone are supposed to know, prescribed for by distant manufacturers of complicated preparations with high-sounding names. Most of these are very distinctly inferior to the simpler material of the Pharmacopœia, open to all without concealment, advertisement, or charlatanry of any kind.

The author of the present work, who was prevented by circumstances, which he has ever since regretted, from taking part in the Revisional Convention, can say what the members of the Convention might not feel at liberty to say so publicly, that the familiarity with the United States Pharmacopœia gained in the preparation of this commentary has continually increased his respect for the practical wisdom guiding the selection of remedies and preparations, and the professional skill and minute accuracy everywhere evident. Rarely need the most "progressive" practitioner go outside of its limits for anything of real value.

In this little work the author has endeavored to supply briefly and concisely the information necessary to make it a convenient book for the practitioner, though not with the hope of rivalling the encyclopædic United States and American dispensatories, to which, as well as to the works of Husemann, Rabuteau, Bartholow, and H. C. Wood, he here acknowledges his special obligations. It cannot, of course, be expected in a work of this size that all the subjects will be exhaustively treated, and, in fact, the practitioner will find it useful as much in the way of a remembrancer as an authority. It will be noticed, perhaps unfavorably, that the author has endeavored to suggest, so far as possible, principles of treatment rather than to mention the name of each disease in which each drug has been or may be used. This, if it be an error, is one of judgment rather than of inattention.

The doses stated are those for a healthy adult of average size and susceptibility. Individual peculiarities may, of course, diminish or increase the required dose. The dose for children may be calculated from these by the well-known rule: Dose for child, 1 = dose for adult × age of child, ÷ (age + 12); or by a table. Calculations based

on weight, suggested by the late Dr. E. H. Clarke, and corresponding to the calculations constantly made in the physiological laboratory in researches on experimental pharmaco-dynamics, would have the advantage of applying to all cases of small and delicate adults as well as to children, if only weight were an approximate indication of susceptibility to drugs. For this purpose the doses may be considered as stated for a person of one hundred and fifty pounds weight, or sixty-eight kilogrammes.

In conclusion, the author wishes to express to Dr. Robert Amory, President of the Convention, by whom the preparation of this little book was suggested, his thanks for assistance rendered throughout. He also promises in advance his thanks for any friendly criticism which may be made upon it, especially if accompanied with facts in regard to subjects upon which he has expressed himself doubtfully or erroneously. Such criticisms will be gratefully received, and, if another edition should be called for, carefully considered.

THERAPEUTIC HANDBOOK

OF THE

UNITED STATES PHARMACOPŒIA.

ABSINTHIUM.

WORMWOOD.

Herba s. Summitates Absinthii—Absinthe Commune, Grande Absinthe, Armoise Amere, Fr. ; *Wermuth*, G.

Contains a volatile oil and a bitter principle, absinthin. To the former of these it owes its power, when given in small doses, of quickening the heart's action, and in much larger ones, of producing decided narcotic effects, of which the most important is epileptiform convulsions. To the bitter it owes its action in stimulating the digestive organs. Its therapeutic value is small, but it is sometimes used in cases of impaired digestion and flatulent dyspepsia. It is better known as the most important ingredient in the French liqueur *absinthe*, which has peculiarly intoxicating properties, and is said to give rise, on long-continued use, to epilepsy both in man and animals.

Dose.—Fifteen to forty grains (1 to 2.5 grammes). An infusion (1 part to 10 of boiling water) may also be used in doses of one to two fluid-ounces (30 to 60 grammes).

ABSTRACTA.

ABSTRACTS.

The abstracta or abstracts have been introduced into the Pharmacopœia probably because experience has shown that the solid extracts are unstable preparations and are not of uniform strength. As these abstracts are thus recently introduced, the strength of their preparation has been gauged upon a uniform plan, so that one part of abstract represents

two of the crude drug. As all the active principles of the drug are supposed to be contained in the abstract, its dose will naturally be one-half that of the crude drug; but since alterations or losses may take place, these doses must for the present be regarded as minimums, from which the actual working dose is to be ascertained by careful trial. The doses given below, unless otherwise stated, are calculated upon this plan. The abstracts should be double the strength of the corresponding fluid extracts. They are to be used when the drug is wanted in a solid but somewhat concentrated form for powders or pills, and are much more easily dispensed and divided than the solid extracts.

ABSTRACTUM ACONITI RADICIS.

ABSTRACT OF ACONITE ROOT.

Dose.—One-sixth to two grains, one to twelve centigrammes (.01 to .12).

ABSTRACTUM BELLADONNÆ.

ABSTRACT OF BELLADONNA.

Dose.—One-half grain, three centigrammes (.300), gradually increased until the desired effect is obtained.

ABSTRACTUM CONII.

ABSTRACT OF CONIUM.

All the preparations of conium, and especially the solid extract, are uncertain; so that, unless the present abstract should prove an exception to this rule, it will be desirable to fix the dose in each case by trial, beginning with a safe quantity. Supposing the abstract to be, as it should be, twice the strength of the best fluid extract, a safe commencing dose would be seven or eight grains, fifty centigrammes (.50).

ABSTRACTUM DIGITALIS.

ABSTRACT OF DIGITALIS.

Dose.—One-half grain to one grain, three to six centigrammes (.03 to .06), from two to four or five times a day.

ABSTRACTUM HYOSCYAMI.

ABSTRACT OF HYOSCYAMUS.

Dose.—Three to five grains, eighteen to thirty-two centigrammes (.18 to .32), which may be increased quite rapidly until characteristic effects are obtained.

ABSTRACTUM IGNATIÆ.

ABSTRACT OF IGNATIA.

Dose.—One grain, six centigrammes (.06 gramme), gradually increased.

ABSTRACTUM JALAPÆ.

ABSTRACT OF JALAP.

Dose.—Seven to ten grains, forty-five to sixty-four centigrammes (.45 to .64).

ABSTRACTUM NUCIS VOMICÆ.

ABSTRACT OF NUX VOMICA.

Dose.—One-half a grain, three centigrammes (.03), gradually increased.

ABSTRACTUM PODOPHYLLI.

ABSTRACT OF PODOPHYLLUM.

Dose.—As a purgative, ten grains, sixty-four centigrammes (.64), in combination with other drugs, or when repeated at shorter intervals, as in cases of habitual constipation, a fraction of this amount should be used.

ABSTRACTUM SENEGÆ.

ABSTRACT OF SENEGA.

Dose.—Five to ten grains, thirty to sixty centigrammes (.30 to .60).

ABSTRACTUM VALERIANÆ.

ABSTRACT OF VALERIAN.

Dose.—Fifteen to forty-five grains, one to three grammes (1 to 3).

ACACIA.

GUM ARABIC.

Gummi Arabicum, s. *Mimosæ*—*Gum Arabic*, E.; *Gomme Arabique*, Fr.; *Arabisches Gummi*, G.

Owes its medicinal value to its want of activity. It is used partly as a vehicle in the formation of mixtures of insoluble substances, and partly as gum water, to form a sort of protective coating for mucous surfaces, as in inflammation about the fauces or in diarrhœa. It is certainly

nearly devoid of nutritive value and probably absolutely so. It should not be prescribed with any considerable proportion of alcoholic preparations nor with the various substances mentioned in the Pharmacopœia as forming insoluble precipitates. It may be given for the purposes indicated above, either as gum-water or simply allowed to dissolve in the mouth in its crude form, or as lozenges or troches. The gum-drops of the confectioners, which can be used in the same way, are probably not altogether pure acacia.

ACETUM LOBELIÆ.

VINEGAR OF LOBELIA.

Vinaigre de Lobelie Enflée, Fr. ; *Lobelien-Essig*, G.

A good preparation of lobelia, in which the acid is especially valuable as tending to preserve from decomposition the not very stable alkaloid. Like the other three vinegars, it is a little (about one-fifth) weaker than the corresponding preparation in the last edition, and the dose may consequently be slightly increased.

Dose.—When frequently repeated, as in asthma or in spasmodic croup, thirty minims to a fluidrachm, two to four grammes. The emetic dose is one-half a fluidounce (fifteen grammes or cubic centimeters).

ACETUM OPII.

VINEGAR OF OPIUM.

[Black Drop.]

Black Drop, E. ; *Vinaigre d' Opium*, Fr. ; *Opium-Essig*, G.

This preparation, though somewhat weaker than the vinegar directed in the last edition, is still the strongest liquid preparation of opium. It is rather less liable to cause nausea than the tincture, partly perhaps on account of the nutmeg it contains, and partly because it is free from the disagreeable odor of the tincture as well as nearly so from narcotina. These advantages, however, it shares with the deodorized tincture. It is consequently sometimes used for persons with whom the ordinary tincture disagrees. As this preparation contains ten per cent. of its weight of opium, the dose may be gauged by the dose of crude opium, which is one-fourth of a grain to two grains (.016 to .133). The physician should assure himself whether the preparation he is using is made according to the present or last edition of the Pharmacopœia. Eight and one-half minims = one grain of opium ; eighty-five one-hundredths of a cubic centimeter = one decigramme of opium.

Dose.—Four to fifteen minims, or one-fourth to one cubic centimeter, corresponding to *about* one-half to two grains, or three to twelve centigrammes of opium. Where great care is not required minims may probably be taken to mean drops.

ACETUM SANGUINARIÆ.

VINEGAR OF SANGUINARIA.

[Blood Root.]

Vinaigre de Sanguinaire, Fr.; *Blutwurzel-Essig*, G.

Dose.—When to be frequently repeated, fifteen to thirty minims, one to two grammes; as an emetic, three or four fluidrachms, twelve or sixteen grammes.

ACETUM SCILLÆ.

VINEGAR OF SQUILL.

Vinaigre Scillitique, Fr.; *Meerzwiebel-Essig*, G.

This preparation is less frequently employed than the syrup, which is made from it by the addition of sugar.

Dose.—Fifteen minims to a fluidrachm, one to four grammes.

ACIDUM ACETICUM.

ACETIC ACID.

Acetum Purum—Acetum Destillatum, P. G.; *Acide Acetique Diluée*, Fr.; *Reiner Essig*, G.

ACIDUM ACETICUM DILUTUM.

DILUTE ACETIC ACID.

Acidum Aceticum Dilutum, P. G.; *Acetum Concentratum—Acide Acetique*, Fr.; *Verdünnte Essigsäure*, G.

ACIDUM ACETICUM GLACIALE.

GLACIAL ACETIC ACID.

Acidum Aceticum, P. G.; *Acidum Aceticum Concentratum, Acetum Glaciale—Acide Acetique Concentrée, Esprit de Vinaigre, Vinaigre Glacial*, Fr.; *Essigsäure, Eisessig*, G.

Acetic acid is directed in three degrees of concentration, of which the second and weakest is used for the preparation of the vinegars. The

first and third may be used externally to produce, according to the strength of the acid and the time during which it is allowed to act, either simple irritation or sloughing. The latter, however, is usually not deep. It is chiefly employed in cutaneous affections. The proposed injection into malignant tumors has not proved a success. Recorded cases of poisoning by this acid have occurred, though they are very rare; and it is obvious that severe or fatal irritant poisoning might occur from the ingestion of a large quantity, especially of the stronger kinds. The treatment would be either soap or calcined magnesia to neutralize the acid, followed by oil, demulcents, anodynes, or stimulants as the symptoms might demand. Lime water might be used, but the quantity required would be large; while the carbonates would be objectionable on account of the gas set free. Acetic acid may be applied with a camel's-hair pencil, or if longer contact is desired, on a piece of lint.

ACIDUM ARSENIOSUM.

ARSENIOUS ACID.

[White Arsenic.]

Acidum Arsenicosum, P. G.; *Arsenicum Album—Arsenic, White Arsenic, Arsenious Anhydrid*, E.; *Acide Arsenieux, Arsenic Blanc, Fleurs d'Arsenic*, Fr.; *Arsenicsäure, Weisser Arsenic*, G.

White arsenic is nearly tasteless, but when dissolved has a feeble sweetish taste. It is readily absorbed from the alimentary canal, including the rectum, from the vagina, and from the skin, especially if abraded. Hence, great caution should be observed in applying it over too large a surface. It may also be absorbed from the pulmonary mucous membrane in the form of vapor or powder. In small doses, one-thirtieth to one-twelfth of a grain, two to five milligrammes (.002 to .005), arsenic produces at first no very obvious effects. If too large or long continued, slight gastric disturbance, nausea, or vomiting may result, and a puffiness of the face, especially noticeable beneath the eyes. In larger doses the symptoms are more decided; and with still larger it becomes an active poison attended with severe burning pain in the fauces and epigastrium, persistent vomiting, diarrhœa, often bloody, frequent and feeble pulse, cramps, cold skin, pinched features, collapse, and death. The urine is scanty, and may be albuminous. In some cases death occurs very rapidly, and with comparatively little action on the stomach, apparently owing to the profound impression of the poison on the nervous system. Several times repeated in doses larger than therapeutic, but too small to be singly fatal, the symptoms more closely resemble those of some chronic gastric disease. In

cases where the poisoning proceeds with less rapidity, there are developed, in addition to the disorders of the digestive tract, pains in the limbs, headache, vertigo, itching, and finally, paraplegia. Cutaneous eruptions are often seen.

The post-mortem appearances are gastritis and a fatty degeneration of important organs: stomach, liver, kidneys, and heart. It is highly probable that the later nervous symptoms depend, in part at least, upon a toxic myelitis. Similar symptoms may arise from other compounds of arsenic employed in the arts, of which, however, a minute description is not in place here.

The best authorities vary widely as to the minimum fatal dose, twelve milligrammes to one and a half gramme (.012 to 1.5) ($\frac{1}{5}$ of a grain to 22 grains), and Taylor and Tardieu say that it cannot be stated with accuracy. The latter author, however, says there is no doubt that in certain cases, rare, it is true, ten to fifteen centigrammes (.10 to .15 gramme) may cause death. In most cases of criminal poisoning, however, the amount employed is so greatly in excess of even a very large dose that the question loses its practical importance.

The detection and recognition of arsenic in the body after death is, in the hands of a competent chemist, a matter of almost absolute certainty and not very great difficulty. For the process as well as for a more detailed account of the symptoms, the text-books on Toxicology should be consulted.

The antidotes to be used in a case of arsenical poisoning are, freshly precipitated ferric oxide and freshly precipitated hydrate of magnesia. The so-called unofficinal dialyzed iron solution is said to be a trustworthy source for the first of these, for which also an officinal process is given. A second formula combines the advantages of each.

The dose of arsenic may by gradual increase become very large, as has been seen in the now thoroughly authenticated cases of habitual arsenic-eaters, especially in Styria, and of persons who have used it a long time for medicinal purposes.

Although the therapeutic range of arsenic is limited, its value is by no means small. Its medicinal uses are in no way deducible from any observed physiological effect, but depend solely on experience. They may be classified under three heads.

Diseases of the skin, especially of the scaly varieties, as psoriasis and pemphigus.

Affections involving the nervous system, as chorea and migraine. Perhaps hay fever and intermittent fever may come under this head.

Certain forms of anæmia, in which it has been found to increase the red-blood corpuscles much more rapidly and certainly than iron. The administration in all these cases is conducted on the same plan of begin-

ning with moderate doses and increasing until the symptoms of gastric disturbance and puffiness of the eyelids are observed. In chorea, for instance, it is doubtful if the full therapeutic effects are obtained until the limits of toxic action are nearly approached. A single exception to this rule is to be found in its application to cases where the stomach is already irritable, as in some forms of dyspepsia. Here the dose should begin and continue small. In intermittent fever we must not look for so speedy results as from the cinchona alkaloids, nor is it to be trusted in cases where it is of great importance to arrest the next chill. White arsenic may be given in pill combined, as in the so-called Asiatic pills, with black pepper, or, as is more common, in the form of Liquor potassii arsenitis, or Fowler's solution. It should not be given on an empty stomach, and, if in solution, should be well diluted.

For external use, arsenic should be quite largely diluted. The diluting ingredients have varied very greatly, as well as the proportion, the latter ranging from one part of arsenic in the hundred to nearly fifty. It is an uncertain, unsafe, tedious, and painful external application employed sometimes in lupus and superficial malignant growths.

Dose.—One-thirtieth to one-tenth of a grain, two to six milligrammes (.002 to .006).

ACIDUM BENZOICUM.

BENZOIC ACID.

Acidum Benzoicum Sublimatum, Flores Benzoes—Acide Benzoique, Fleurs de Benjoin, Fr.; *Benzoesäure, Benzoeblumen*, G.

Benzoic acid derives its chief therapeutic importance from the fact that when taken into the blood it becomes hippuric acid and is excreted as such in the urine. This change takes place from its combination with glycocoll according to the following formula:

Benzoic acid. Glycocoll. Hippuric acid. Water.

$$C_7H_6O_2 + C_2H_5NO_2 = C_9H_9NO_3 + H_2O.$$

Hence it is used to render the urine acid when it has become alkaline and phosphatic. Benzoate of ammonia may be also used.

Large doses of benzoic acid are said to produce a general feeling of warmth, with a quickened pulse and increased bronchial and cutaneous secretions. There may also be gastric irritability. This acid is a useful external application in chapped hands, cracked nipples, etc., but for this purpose the compound tincture of benzoin is more commonly employed.

Dose.—Twenty grains more or less, a gramme to a gramme and a half, two or three times a day in wafers.

ACIDUM BORICUM.

BORIC ACID.

[Boracic Acid.]

Acide Borique, Fr.; *Acidum Boricum, Acidum Boracicum, Sal Sedativum Hombergii, Börsäure*, G.

This drug possesses but a slight degree of acidity and is only feebly irritant. It is an efficient antiseptic, and its ten-per-cent. solution may be used with benefit as an injection into suppurating cavities, as in cystitis and empyema. It can also be given internally in doses of eight to sixteen grains, one-half to one gramme, without disturbing the stomach. It is eliminated in the urine.

ACIDUM CARBOLICUM.

CARBOLIC ACID

[Phenic Acid, Phenyl, Phenol.]

Acidum Phenicum, S.; *Phenylicum Crystallisatum—Phenic Acid, Phenylic Alcohol, Phenol*, E.; *Acide Phenique, Acid Carbolique, Hydrate de Phényle*, Fr.; *Carbolsäure, Phenylsäure, Phenyl Alkohol*, G.

ACIDUM CARBOLICUM CRUDUM.

CRUDE CARBOLIC ACID.

Acide Phenique Cru, Fr.; *Rohe Carbolsäure*, G.

A disinfectant and antiseptic, but not a deodorizer. It checks both those fermentations depending upon an organized ferment and those of a chemical character, such, for instance, as stomach digestion. The latter, however, require a larger proportion (2 per cent. or more) than the former (.5 per cent.). When strong it is a local irritant, producing on skin and mucous membranes a dry, white superficial slough. It has also a decided anæsthetic effect, when strong completely destroying sensation, as, for instance, in an aching tooth; and even in such solutions as are used for surgical purposes producing numbness of the fingers. Painless sloughing of a part of a considerable size, as a toe or finger, has taken place beneath carbolic acid dressings. Its local application to incised boils or by hypodermic injection is said to have met with success in limiting the spread of inflammations. It is absorbed from the stomach, or the respiratory tract, or from large surfaces unprotected by an epithelium, such as extensive wounds or sinuses.

Poisoning may be divided into slow and rapid. In the former the first, most characteristic, and if warning is taken in time, perhaps the only

symptom is the "black" or green urine (chinon?), followed by great feebleness and collapse, diminished activity of heart and respiration, muscular weakness, giddiness, diminished temperature, and death.

In some cases a surgeon, frequently using the carbolic spray, has been alarmed, without suspecting the cause, by the appearance of albumen in his urine, until its disappearance during an enforced vacation has disclosed to him its origin. This form may arise from absorption from the lungs or during surgical treatment of large cavities. In more rapid poisoning, as when strong solutions of carbolic acid have been drunk by mistake, there are loss of consciousness, sensation, and locomotion, paleness of the face, stertorous respiration, frequently contraction of the pupil, frequent and feeble pulse, sometimes trismus. It is singular that the tonic convulsions which usually accompany carbolic-acid poisoning in animals, have not been observed in man. If a patient lives long enough after this form of poisoning, symptoms of local irritation assume more importance. The antidote recommended is saccharate of lime, which, however, is not likely to be obtained soon enough to be of much value in severe cases. Eggs and milk and oil may be used, as in many other kinds of irritant poisoning.

Carbolic acid is not very much used internally. The medicinal dose is one minim or less, well diluted or in a pill. This is sometimes used to check vomiting. It is probably of no value as an antiseptic after absorption, although it has been tried in various zymotic diseases. The same may be said of intermittent fever. It is said that the dose may be gradually increased to fifteen drops, three or four times a day for men, and six or seven for women. It may be cautiously used for inhalation either as vapor from a piece of sponge, or a spray. This, however, should not be too prolonged or too frequently repeated.

The external applications, however, are varied and extensive. For the coarser uses, such as the disinfection of rooms, drains, etc., it may be remarked that the crude and impure forms are to be preferred on account of price, and because their efficiency is not to be estimated solely by the amount of carbolic acid they contain, since the principal so-called impurity, cresylic acid, is also a disinfectant of power almost equal to carbolic. The strong acid is used as a caustic on a wad of absorbent cotton. Weaker solutions are used in various stages of surgical operations and dressings, as spray, or for the washing of instruments or wounds. The strength may vary from five per cent. to one or one-half of one per cent., the former being decidedly irritant.

Solutions in oil or glycerine are also used for special purposes, as in skin diseases attended with itching. A carbolized paraffine or petroleum ointment is a useful addition to the obstetric bag. Carbolized dressings are prepared by soaking the appropriate texture, such as oakum, lint, or

gauze, in a watery, or, if a more permanent preparation is desired, a fatty solution, and drying. For disinfecting rooms, etc., the crude acid may be used as a wash, or a powder impregnated with it may be scattered freely around, or the acid may be evaporated over a lamp. The danger of such an atmosphere has been already alluded to.

ACIDUM CHROMICUM.

CHROMIC ACID.

Chromic Anhydrid, E.; *Acide Chromique*, Fr.; *Chromsäure*, G.

This powerful acid is of use solely externally, and usually as a caustic, especially for warty and superficial growths. The depth of its action may be limited by the strength at which it is used, from the crystal to a solution of one in eight parts. Weaker solutions, as one in sixteen or twenty parts are astringent. When the stronger solutions are used, the neighboring parts should be protected, if possible, by plaster, ointment, or cotton soaked in bicarbonate of soda.

ACIDUM CITRICUM.

CITRIC ACID.

Acidum Citri s. Limonum s. Limonorum—Acide Citrique, Acide du Citron, Fr.; *Citronensäure*, G.

This drug dissolved in water forms an agreeable and safe acid drink. In large doses it renders the urine acid. It is not irritant in any reasonable amount or degree of concentration. A solution of a little more than seven per cent. corresponds to lemon juice. It may be used for its local effects in putrid affections of the mouth and fauces, also to relieve pruritus.

ACIDUM GALLICUM.

GALLIC ACID.

Acide Gallique, Fr.; *Gallussäure*, G.

This is a much feebler astringent than its congener tannic acid. It is absorbed from the stomach and eliminated by the urine. Since tannic acid is converted in the economy into gallic acid, and since the latter is less locally irritating and less disagreeable to the taste than tannic acid, it follows that unless the point at which astringent action is desired is directly accessible to the drug, gallic acid is to be preferred as an astringent to tannic acid. Hence it is often used in hemorrhages from the lungs or from the uterus, when for any reason surgical treatment is not available and ergot cannot be used. It is also employed to diminish excessive secretion, as in polyuria, albuminuria, bronchorrhagia, leucorrhœa,

and night-sweats. It is best given in water, or the powder may be simply mixed with water. An efficient dose makes an inconvenient pill. The glycerite may be used.

Dose.—From five to twenty grains, thirty to one hundred and thirty centigrammes (.30 to 1.30), repeated at intervals of two or three hours.

ACIDUM HYDROBROMICUM DILUTUM.

DILUTED HYDROBROMIC ACID.

Acidum Bromohydricum—Acide Hydrobromique, Fr.; *Bromwasserstoffsäure, Hydrobromsäure*, G.

Employed chiefly as a corrigent to iron and quinia to prevent the headache so often accompanying their full action, but sharing also the quieting action of bromide of potassium, though less lasting and powerful. It is said not to be useful in epilepsy. Added to a mixture of quinine and water, it will cause a clear solution in the proportion of two minims to each grain of quinine.

Dose.—From thirty minims to one fluidrachm, two to four grammes or cubic centimeters, well diluted.

ACIDUM HYDROCHLORICUM.

HYDROCHLORIC ACID.

Acidum Hydrochloricum, Br.; *Acidum Hydrochloratum s. Chlorhydricum—Hydrochloric Acid*, E.; *Acide Chlorhydrique s. Muriatique*, Fr.; *Salzsäure*, G.

The strong acid has occasionally been used as a caustic, though much less active than nitric or sulphuric.

ACIDUM HYDROCHLORICUM DILUTUM.

DILUTED HYDROCHLORIC ACID.

[Acidum Muriaticum Dilutum, *Pharm.*, 1870.]

The dilute acid is sometimes employed as a local application in diseases of the throat. It has been given as an acid drink in fevers. It is principally useful for the relief of some of the milder dyspeptic symptoms, administered well diluted shortly after meals. It is frequently, but not by any means necessarily, combined with pepsin. It may well be taken through a tube. Caution should be given as to care of the teeth by rinsing with water or an alkaline solution, or with milk previous to the reception of the acid.

Dose.—Eight to fifteen drops, one-half to one cubic centimeter (.5 to 1).

ACIDUM HYDROCYANICUM DILUTUM.

DILUTED HYDROCYANIC ACID.

Acidum Hydrocyanatum s. Borussicum—Prussic Acid, E.; *Acide Cyanhydrique s. Hydrocyanique*, Fr.; *Cyanwasserstoffsäure, Blausäure*, G.

One of the most active of poisons; very rapidly absorbed from the stomach, or, when volatilized, from the respiratory organs. If the finger is held for a short time over the mouth of the bottle containing the acid, it becomes anæsthetized. A few inhalations from the bottle produce a sensation of constriction in the chest and an indescribable feeling of "far-offness" somewhat like that from ether. This may be considered the limit of its physiological action. The symptoms of poisoning usually come on with great rapidity, although there are a number of cases on record where time had been left sufficient for the performance of some voluntary acts, say a minute more or less. Then the patient becomes unconscious. The pulse is feeble, the breathing slow and labored, the pupils dilated, skin cold, and limbs flaccid. Convulsions may occur. Death is due to asphyxia, and usually takes place within three-quarters of an hour, and may come much sooner. It may be said, as a general rule, that if the patient continues to live for an hour he will recover. There are no characteristic post-mortem appearances. The smell of the drug may remain for some days in the body, but does not always do so. The recognition of the odor in the breath of a person found insensible might be of considerable medico-legal as well as therapeutic value. The smallest dose known to have destroyed life is about nine-tenths of a grain, equal to about fifty drops of the officinal acid. On the other hand, two and four-tenth grains have been recovered from.

No antidote is known. Ammonia may be of value, but some caution should be used in applying too strong a vapor to the nostrils of a person who may survive to suffer from it. Brandy should be given subcutaneously; but atropia in the same method of administration, although by no means a certain antidote, will probably be found most efficient.

The therapeutic applications of hydrocyanic acid are very limited. It is applied externally to relieve itching, but caution is necessary lest absorption takes place, especially if any abrasions exist.

The proposal to use it as an antipyretic, on account of its supposed power to limit the metamorphosis of tissue, savors more of the laboratory than of the hospital. It is employed chiefly to relieve irritative and nervous spasmodic cough, and to allay gastric irritability, or both, as in whooping-cough.

Dose.—One, two, or three drops, in syrup or water.

ACIDUM LACTICUM.

LACTIC ACID.

Acide Lactique, Fr.; *Milchsäure*, G.

Lactic acid has been employed in the treatment of dyspepsia in the same manner as has been mentioned of hydrochloric. It has been used as a part of the treatment of diabetes known by the name of Cantani. In some cases treated by this method symptoms of acute rheumatism have appeared, which subsided upon stopping the acid. Dr. B. W. Richardson produced inflammation of the joints and pericardium by its administration to animals.

It is also used in diphtheria and croup, both as a wash applied with a mop and as a spray. Its exact value in this way can hardly be regarded as determined, but is probably small. Its use as an hypnotic, recently popular with some German physicians, has not met with general favor.

Dose.—In dyspepsia, one-half drachm (two grammes), diluted, after meals. In diabetes, two to four drachms (eight to sixteen grammes) per diem. As a local application a five-per-cent. solution may be used.

ACIDUM NITRICUM.

NITRIC ACID.

Acidum Nitri s. Azoticum, Spiritus Nitri Acidus—Acide Azotique, Fr.; *Salpetersäure*, G.

A strong caustic, staining the tissues yellow. Applied with a piece of pine wood, or on a glass rod or brush. The tissues in the neighborhood should be protected with oil or soap.

ACIDUM NITRICUM DILUTUM.

DILUTED NITRIC ACID.

When given internally nitric acid seems to produce serious disturbances of the intestinal canal, and some of its effects are described as not unlike those of mercury. Its medicinal value is slight. If used internally the teeth should be protected.

Dose.—Of the strong acid, five to twenty drops, three to one hundred and thirty centigrammes. Of the dilute, fifteen to forty-five minims, one to three grammes or cubic centimeters, well diluted.

ACIDUM NITROHYDROCHLORICUM.

ACIDUM NITROCHLORICUM DILUTUM.

[DILUTED NITROHYDROCHLORIC ACID.]

Acidum Chloro-nitrosum, P. G.; *Acidum Nitrohydrochloricum, Aqua Regia s. Regis—Acide Chloro-azotique S. Chloro-nitreux, Eau Régales*, Fr.; *Salpetersalzsäure, Königswasser*, G.

It is stated by Dr. H. C. Wood that the lemon-yellow acid directed by the Pharmacopœia is much less efficient than that recently prepared, which has a deep red color. He consequently disapproves of the officinal dilute acid, and prefers the strong acid freshly made and diluted when wanted. This acid appears, on the basis of clinical observation, to increase the activity of the glandular organs of the intestinal canal, especially the liver, and it has been used in many affections known or supposed to depend upon disease of the latter organ. It has been largely used in the form of baths, sometimes of the whole body, sometimes of the feet or the hepatic region. It may produce salivation when used as a bath.

Dose.—Internally, of the strong acid five to eight drops, thirty to fifty centigrammes (.30 to .50). A lotion may be made of from one to three fluidrachms to the pint (.8 to .2½ per cent.).

ACIDUM OLEICUM.

OLEIC ACID.

Acidum Oleicum s. Oleinicum—Acide Oleique, Fr.; *Oelsäure*, G.

Used to form the oleates.

ACIDUM PHOSPHORICUM.

PHOSPHORIC ACID.

Acide Phosphorique, Fr.; *Phosphorsäure*, G.

ACIDUM PHOSPHORICUM DILUTUM.

DILUTED PHOSPHORIC ACID.

The diluted acid is the only form which is used in practical medicine. It makes an agreeable acidulous drink, and has been employed with apparent advantage in fevers. Its value as a reconstituent to the nervous or osseous system is extremely doubtful. Clinical observation is by no means decisive in its favor, and our knowledge of the conditions of ner-

vous action in relation to the excretion of phosphates is too limited to furnish any adequate theoretical basis for such a use.

Dose.—Fifteen minims to a fluidrachm, one to four cubic centimeters, well diluted.

ACIDUM SALICYLICUM.

SALICYLIC ACID.

Acide Salicylique, Fr.; *Salicylsäure*, G.

An antiseptic and antipyretic. It was at one time supposed that this acid would in the blood undergo a decomposition into its components and set free carbolic acid. This, however, does not take place, since it reappears in the urine in the modified form of salicyluric acid, and may be demonstrated by the addition of a ferric salt, which produces a purple precipitate. It is only slightly irritant, except to the respiratory passages, in the form of powder, while considerable quantities are required in most cases to give rise to gastric irritation. Besides its local effects, salicylic acid may give rise to buzzing in the ears, deafness, and other symptoms, not unlike those from quinine, as well as delirium. Albuminuria and nephritis have been seen after large doses, but are not common. In febrile cases it reduces the temperature and pulse, and usually gives rise to profuse perspiration. Its effects after absorption are exactly those of salicylate of sodium, and approximately those of salicin ; hence, for internal use, on account of the insolubility and inconvenience of administration of the acid, the salicylate is much to be preferred.

The number of diseases in which this drug has been supposed to be of great value is very large, but the indications for its use may be stated as externally or surgically, antiseptic, and internally or medically, antipyretic.

Acute rheumatism is the disease in which its action is most manifest and most desirable. In chronic rheumatism it has little or no power.

Externally, a solution of it, one to three hundred, may be used ; a stronger one may be prepared by the aid of alcohol. A salicylic wadding is prepared by soaking cotton in a hot solution and drying. Internally the acid may be given mixed with water (a clumsy and disagreeable method), or in wafers, or in pills made with some slightly acid syrup as an excipient, such as syrup of squill or common molasses. Solutions (which are really solutions of salts of the acid) may be made with carbonate of sodium (about 5 parts of the bicarbonate to 6 of the acid), borax, or liquor ammoniæ acetatis.

Dose.—Five to fifteen grains, thirty centigrammes or one gramme (.30 to 1), repeated every hour or two hours. From sixty to ninety grains, four to six grammes, may be regarded as an average dose required to produce decided relief in acute rheumatism.

ACIDUM SULPHURICUM.

SULPHURIC ACID.

ACIDUM SULPHURICUM DILUTUM.

DILUTED SULPHURIC ACID.

Acidum Sulphuricum, P. G.; *Oil of Vitriol*, E.; *Acide Sulphurique, Huile de Vitriol*, Fr.; *Schwefelsäure, Vitriolöl*, G.

This is one of the most highly corrosive of the acids, when strong, thoroughly carbonizing the tissues on account of its affinity for water, and even the dilute acid being decidedly irritant. When thrown upon the surface of the body, the excess of acid should first be wiped off, and then a *large quantity* of water with soap applied. When swallowed, salts of lime or magnesia, or the alkaline carbonates, or soap, should be given. Even when life is not rapidly destroyed, the destruction of tissue is usually so great that incurable and ultimately fatal lesions are left. The diluted acid is astringent.

Uses.—The strong acid is occasionally employed as a caustic mixed with asbestos or some inert substance to bring it into the form of a paste. It is far from being one of the best. More diluted it has been used as a local application in some skin diseases. The dilute acid is used to check colliquative sweating, and also in diarrhœal diseases. Sulphuric acid lemonade has been used in manufactories as a prophylactic against lead-poisoning, on account of its forming an insoluble salt with the metal.

Dose.—One or two drops very largely diluted; of the dilute acid, from ten to thirty drops also diluted. Special care should be given to the teeth, which should be well rinsed with milk.

ACIDUM SULPHURICUM AROMATICUM.

AROMATIC SULPHURIC ACID.

Tinctura Aromatica Acida, P. G.; *Elixir Vitrioli Mynsichti—Elixir of Vitriol*, E.; *Elixir Vitriolique, Teinture (Alcoole) Aromatique Sulphurique*, Fr.; *Säure Aromatische Tinctur, Mynsicht's Elixir*, G.

A somewhat more agreeable preparation than the simple acid, used for the same purposes. Also as a solvent and excipient for quinia in pills.

Dose.—Ten to twenty drops (.6 to 1.3) diluted.

ACIDUM SULPHUROSUM.

SULPHUROUS ACID.

Acide Sulfureux, Fr. ; *Schwefelige Säure*, G.

A deoxidizer and disinfectant. It is used externally as a parasiticide in some diseases of the skin caused by cryptogamic vegetations. In the stomach it checks the abnormal fermentations giving rise to acid dyspepsia and flatulence. It may be used as a gargle in putrid diseases of the throat.

Dose.—One to three fluidrachms, four to twelve cubic centimeters, well diluted. For the disinfection of rooms sulphurous acid gas is prepared by burning sulphur therein.

ACIDUM TANNICUM.

TANNIC ACID.

Acidum Gallo-Tannicum, Tanninum—Tannin, E. ; *Acide Tannique, Tannin*, Fr. ; *Gerbsäure, Tannin*, G.

The tannic acid of the Pharmacopœia is a member of a very large group of substances of vegetable origin differing in some minor reactions, but having in common the property of coagulating albumen, fibrin, and gelatine, and giving blackish precipitates with ferric salts. The basis of most black writing-inks is tannate of iron. The officinal tannic acid belongs to the sub-group which precipitates the ferrous salts blue-black, in contradistinction to another, comprising a very large number of drugs, such as catechu, kino, and cinchona, which give a green-black color. It differs from other members of the same group by its possible transformation into gallic acid, both on exposure to the air and in the animal organism. It is found in oak bark, and is manufactured from nutgalls, hence its name of "querco- or gallo-tannic" acid.

Tannic acid is absorbed from the alimentary canal, but exists in the blood and urine only as gallic acid. It coagulates mucus and other secretions, and renders mucous membranes and other lax tissues rough, dry, and more dense. This action is akin to that upon dead tissues in the production of leather, but obviously cannot be exactly the same. It is probably a product of several factors, viz., dehydration, partial coagulation, and contraction of smooth muscular fibres, especially those in the walls of the vessels. When taken in the mouth, tannic acid produces a sensation, peculiar and somewhat disagreeable, but not painful, more easily learned by experiment than description, and known as that of astringency. In small doses in the stomach it produces little if any disturbance of diges-

tion, but simply constipation, which, however, is not of a very permanent character. Large doses are not entirely free from irritant action, and may naturally cause nausea, vomiting, and other dyspeptic symptoms, but do not increase constipation, and in some cases have seemed to produce diarrhœa.

The uses of tannic acid are very numerous. Externally it is applied in the form of lotion, ointment, glycerite, or powder, in hemorrhages, catarrhal affections, ulcerations, and relaxed tissue. Internally it may be used for diarrhœal affections. It is well to restrict the use of tannin to cases where it can directly reach the part to be affected, since when the astringent is to be carried by the blood, tannic acid is no more efficient than gallic, or, rather, is transformed into it; and by using the latter in the first place, we avoid that irritant effect on the digestive organs which tannic acid in large doses is likely to produce, as well as its more styptic and disagreeable taste. In practice a large number of drugs containing this or allied tannins are employed in the same way, some of them possessing other properties in addition to their astringency.

Tannic acid should not be prescribed with the alkalies, mineral acids, metallic salts, lime-water, starch, albumen, or gelatine, or with strong solutions of alkaloids or neutral active principles. It may be used as an antidote in some kinds of poisoning, especially that by tartar emetic and the alkaloids. It should be remembered, however, that the precipitate formed with the alkaloids is only a *relatively* insoluble one, and after the administration there should be no delay in evacuating the stomach.

Dose.—Three to ten grains, twenty to sixty centigrammes (.20 to .60) in wafer or in pill, or if the most rapid action is desired, in solution. Solutions for external use may be of almost any strength. Glycerine is often a convenient excipient in whole or in part.

ACIDUM TARTARICUM.

TARTARIC ACID.

Sal Essentiale Tartari—Acide Tartrique, Acide du Tartre, Fr.; *Weinsäure, Weinsteinsäure*, G.

Is found either free or with a base in a very large number of fruits and vegetables. It is absorbed, and if in sufficient quantity renders the urine acid. This is, perhaps, as little irritating as any acid possessing an equal amount of chemical activity could be, but a case has been reported where death resulted from the ingestion of an ounce. It is but little used alone, but is probably a not infrequent adulterating ingredient with other more expensive acids, as citric. It is chiefly employed as the acid ingre-

dient in various effervescing mixtures, some officinal, many proprietary, and others which may be prescribed extempore.

Dose.—There can hardly be said to be any regular dose. The amount used in the ordinary Seidlitz powder where, however, it is immediately neutralized, is thirty-five grains, or about two and three-tenths grammes.

ACONITUM.

ACONITE.

Tubera Aconiti, P. G.; *Racine d'Aconit*, Fr.; *Eisenhutknollen*, G.

The root and leaves of aconite were formerly both officinal, but the latter have very properly been discarded on account of the weakness and uncertainty of their action. The Pharmacopœia has been much improved by the simplification of the preparations of aconite, but a non-officinal tincture exists, which should be carefully distinguished from the officinal on account of its much greater strength. It is known as Fleming's. There are several species of aconite other than the officinal known and used in the manufacture of various kinds of aconitia, which differ more or less from each other and from the officinal. The chemistry of these alkaloids is still in such a chaotic state that it is impossible to give any satisfactory account of them. The action of aconite is best obtained from the preparations mentioned in the Pharmacopœia or from the alkaloid aconitia.

The physiological action of aconite is first manifested by the peculiar feeling of prickling and numbness, first of the lips and tongue, and afterward extending to the whole face and body. The face feels stiff, and there is a peculiar sensation of restlessness. This is probably at first local, since it may be obtained, without any other symptoms, by chewing for a moment a little piece of the green leaf, and afterward general, since it may be manifested after the use of some preparation which does not undergo prolonged contact with the tongue. Subsequently to this comes a diminution in the pulse-rate, with increased diaphoresis and diuresis. The external use gives rise to the peculiar local sensations, but not to the general symptoms, unless special circumstances favor its absorption. Beyond this the symptoms must be regarded as poisonous. The sensation of numbness becomes one of pain, especially in the region of the trigeminus; the pulse grows weaker and irregular, and finally imperceptible, the face pinched and white, the pupils dilated, the surface cold, and respiration labored; these symptoms are accompanied by great debility and diminution of general sensibility. Convulsions may occur, but the mind is usually clear. This condition may be developed with great rapidity. There are no characteristic post-mortem appearances. The antidotes are stimulants, exter-

nal warmth, alcohol, ammonia, morphia, atropia, and digitalis, subcutaneously if possible.

The medico-legal recognition of poisoning by aconite must as yet depend largely on the symptoms and upon physiological tests applied to material extracted from the body after death.

Aconite has been used in many diseases, but the indications for it can be brought under a few heads. In small doses, frequently repeated, it is reputed a very efficient means of hastening the resolution of slight febrile attacks, such as attend tonsillitis or the evanescent febriculas of children dependent upon disordered digestion, or often upon some unknown cause. The shares due respectively to aconite and to nature, in these cases, are not easy to assign with accuracy. Febrile temperature in more severe cases is not so easily controlled by safe doses. In rheumatism and neuralgia, especially facial, doses sufficient to produce the initial physiological effect should be used. Aconite is often and usefully applied externally in these cases, either in the form of the tincture alone or mixed with chloroform and oil. Ointments are also used. In some rare cases of affections of the heart, where it is desired to reduce the frequency of its action without increasing its force, aconite is a suitable remedy.

Dose.—From one or two grains upward, six to twelve centigrammes (.06 to .12), carefully observing the effects. It is seldom used in the crude form. Dose of aconitia (crystallized), one two-hundred-and-fortieth of a grain ($\frac{1}{240}$), one-fourth of a milligramme (.00025), increased.

ADEPS.

LARD.

Adeps Præparatus, Br.; *Adeps Suillus*, P. G.; *Axungia, Axungia Porci s. Porcina—Prepared Lard, Hog's Lard*, E.; *Axonge, Graisse de Porc*, Fr.; *Schweineschmalz*, G.

ADEPS BENZOINATUS.

BENZOINATED LARD.

Adeps Benzoinatus, Unguentum Benzoini, U. S., 1870; *Axungia Balsamica s. Benzoinata s. Benzoata—Benzoinated Lard, Ointment of Benzoin*, E.; *Axonge (Graisse) Benzoinée s. Balsamique*, Fr.; *Benzoinirtes Schmalz*, G.

The addition of a small amount of benzoin to the lard is intended to protect it from rancidity. It makes no change in the medicinal properties of the fresh lard. Lard is used solely as an ingredient in ointments.

ÆTHER.

ETHER.

Æther Sulphuricus, Naphtha Vitrioli—Sulphuric Ether, E.; *Ether Hydrique s. Vinique s. Sulfurique*, Fr.; *Aether, Schwefeläther*, G.

ÆTHER FORTIOR.

STRONGER ETHER.

Æther Purus, Br.; *Pure Ether*, E.; *Ether Hydrique Pur*, Fr.; *Reiner Aether*, G.

The former of these preparations has chiefly a pharmaceutical value, although it will undoubtedly produce essentially the same effects as the second, which is the kind usually employed for medical purposes.

Ether is exceedingly volatile and inflammable, and hence much care should be used when it is administered by lamplight, or if the actual cautery is to be employed about the upper part of the body. As the vapor is much heavier than air, the lamps should be placed *above* the patient during its administration.

Ether can be absorbed from the alimentary canal, but is almost exclusively administered by inhalation, the vapor reaching the blood with great rapidity through the lungs. At first there is considerable local irritation, giving rise to cough, and a feeling of suffocation. The struggling and talking which are observed in many cases, but by no means all, are usually considered to betoken a stage of stimulation, but it is certainly in many cases rather one of fright, and in others loss of self-control. To this rapidly succeed loss of sense of pain, loss of sensation, of consciousness, of voluntary and of reflex motion. The heart and respiration are, if the administration has been carefully conducted, but little affected. There is a stage previous to complete anæsthesia, but very soon after inhalation has begun, in which analgesia is present, so that a short operation may be done, not without the knowledge of the patient, but without pain. At last, as the patient is ready for an operation, he lies breathing quietly, not stertorously, the face neither pale nor livid, the muscles perfectly relaxed, and completely without sensation. This condition can be maintained by continued administration for some hours. Upon stopping the ether, consciousness returns quite rapidly, with a short interval of confusion or intoxication. Vomiting is very likely to take place, and the patient should not be left to himself until consciousness is sufficiently restored to enable him to keep the fauces clear of the ejected material. Death has occurred from neglect of this rule. It is always wiser to conduct the inhalation on a patient having a fasting stomach. False teeth should be removed.

Various pieces of apparatus have been contrived for conducting the administration of ether, but exceedingly simple ones are the best. A sponge wrapped in a towel or paper, or a cone of leather or metal lined with lint are efficient, manageable, and open only to the objection of a certain amount of wastefulness.

Ether is considered by the majority of medical men in this country, and a large and increasing number in England and on the continent, the safest anæsthetic, and this opinion has received explanation and confirmation from careful physiological experiment. While it is undoubtedly true that no agent which affects so profoundly the whole nervous system, as do all anæsthetics, can be regarded as absolutely free from danger, yet it is equally true that ether affects less than others the centres of organic life, and that its phenomena proceeded in a much more regular and orderly manner. Besides its chief use in operative surgery, the inhalation of ether may be practised for the relief of severe pain, where, however, the short duration of its activity is a great disadvantage. It is used for this purpose in obstetrics, though usually not to complete anæsthesia, except when operations are to be performed. The relaxation of the muscles produced by it renders the reduction of dislocations easier to the surgeon as well as painless to the patient. Convulsions of all kinds are controlled by it. It may be used in the detection of malingering as well as in the diagnosis of contracted limbs and stiff joints.

From the short duration of its activity, ether is obviously unsuited for purposes of habitual intoxication, but ether drunkards are occasionally met with. It is impossible to state the dose of ether by inhalation. The amount used up in any administration is always in excess of the quantity which actually reaches the blood, and varies according to the susceptibility of the patient, the method and care in managing the inhalation, and the time during which the patient remains under its influence.

Subcutaneous injections of ether are given for their stimulant effect in syncope. Ether is occasionally given by the stomach or by enema, and produces a slighter degree of the same effects. It has been employed in various spasmodic and painful affections, such as the different kinds of colic, dysmenorrhœa, and hysteria. It is somewhat unpleasant of administration, but may be given on a lump of sugar or in an emulsion, which should be as cold as possible. Gelatine capsules and a non-officinal preparation called "pearls" are useful.

Intestinal worms are supposed to be narcotized by ether, and to loosen their hold on the intestinal walls. Advantage should be taken of their helpless condition to remove them from their home by a purgative. Ether is said to assist the digestion of cod-liver oil. The volatility of ether at the temperature of the stomach will give rise to a distention of that organ,

which, if not relieved by eructations, is likely to prove annoying. Its volatility makes it also a convenient means for producing external cold when applied by the atomizer. It is used for purposes of counter-irritation and of local anæsthesia, the latter being solely due to the cooling or freezing, and not at all to any specific effect of the ether. It is not easy to produce complete freezing of the skin with ether, certainly in a damp climate.

A drachm, or four grammes, of ether is stated to be a proper dose for use by the stomach, but the only objection to a considerably larger one must be in the difficulty of administration and the inconvenient distention.

ÆTHER ACETICUS.

ACETIC ETHER.

Naphtha Aceti—Acetate of Ethyl, E.; *Ether Acetique, Naphthe Acetique*, Fr.; *Essigäther, Essignaphtha*, G.

Is similar in its action to sulphuric ether, but is less volatile, less inflammable, and has a less disagreeable smell. It is used in some of the cases where the action of ordinary ether in its first stages would be appropriate, but has never been employed like it on a large scale for anæsthesia. It may be inhaled as a stimulant or to relieve a nervous cough.

Dose.—Internally, thirty minims, two grammes or more, diluted.

ALCOHOL.

ALCOHOL.

ALCOHOL DILUTUM.

DILUTED ALCOHOL.

Spiritus, P. G.; *Spiritus Rectificatus*, Br.; *Spiritus Vini Rectificatissimus, Alcohol Vini—Rectified Spirit*, E.; *Alcool*, Fr.; *Weingeist*, G.

Alcohol, as directed in the Pharmacopœia, is seldom used in medicine, except as an external application. This, however, is largely a matter of custom and taste; and as all or nearly all the effects of a very large number of compounds might be produced by alcohol in various degrees of dilution, they will be described in this place, and any special modifications necessary in this statement will be made under the appropriate heads. Alcohol is the product of the vinous fermentation of fruit sugar, which takes place under the influence of the yeast plant, carbonic acid being at the same time disengaged. Hence it may be made from a vast number of vegetables containing either sugar or starch, from which sugar is formed.

Fermented liquors are those which contain only that amount of alcohol which is naturally formed in them, and seldom reach twenty per cent. of alcohol, since at or before this point the alcohol already formed stops any further fermentation. They may, of course, contain anything below this. They are chiefly wines (though these are sometimes "fortified" with distilled liquors) and ales and beers. The distilled liquors are much more concentrated, so that rum, whiskey, brandy, and gin contain from forty to sixty per cent. of alcohol. Strong alcohol coagulates albumen and mucus, preserves organic substances from decomposition, and hinders various fermentations, including that by which it is itself formed. It is a strong irritant, or even a caustic, to mucous membranes; even when diluted to the ordinary strength of distilled liquors, or a little below that of the dilute alcohol of the Pharmacopœia, it is by no means soothing to the unaccustomed palate.

Alcohol is absorbed from the stomach, rectum, or subcutaneous connective tissue, and for a time, proportionate to the dose, reappears in the excretions, though, when given in moderate doses, the quantity eliminated is extremely small, perhaps in most cases less than one per cent. of the amount taken. Larger doses appear in larger proportion, but twenty-five per cent. is probably more than ample to cover the whole elimination in the extremest alcoholic narcotism. After long-continued use it is not wholly eliminated, nor destroyed, and small quantities can be found in the tissues after death. It diminishes the amount of carbonic acid and of urea excreted. Ordinary doses do not materially affect the temperature; large ones lower it. The sensation of heat experienced after small doses is partly due to the slight irritation of the stomach, and partly to the increased activity of circulation. It is a mere change in heat distribution. The symptoms produced by the ingestion of alcohol are sufficiently familiar, beginning with a condition usually spoken of as stimulation, but which, certainly from a very early period, if not from the first, indicates a gradual abolition of the functions of the nervous system, beginning with the highest, so that we have an increasing narcotism, which, like that produced by many other drugs, may end in death. The vivacity, restlessness, garrulity, quarrelsomeness, and self-conceit, as well as many other shades of disposition often displayed, are to be explained as the results of removing those restraints which custom, timidity, and modesty have imposed upon most persons. The relaxation of the vaso-motor nerves is shown by the flushed face, and often by diuresis. No increased mental and no regular increased bodily labor is performed under these circumstances. The heart, however, performs for a time increased work, and hence it is, so far as that organ is concerned, proper to call this effect a stimulation.

When the gait becomes uncertain, the speech thick, and finally the

respiration slow and stertorous, the pupils contracted, and both sensitive and motor nerves have become paralyzed, there can, of course, be no doubt in the mind of any one as to the condition being really that of narcotism. The number of deaths in proportion to the number of cases in which an extreme condition of alcoholic narcotism is induced is small, but they are by no means unknown. Extreme narcotism from alcohol, or "dead-drunkenness," is not always easy to distinguish from that induced by other drugs or from intracranial hemorrhage, especially meningeal, from a sudden attack of pneumonia, or even from some surgical injuries; but the diagnosis is more likely to be made correctly by a physician than by a policeman, though the latter may be right in the majority of cases. There is no specific antidote; but drunkenness likely to be fatal is to be treated on the general principles applicable to narcotic poisoning. Ammonia has a marked but transient effect in relieving the symptoms of the lesser degrees.

The above statement applies to the use of alcohol by persons in health. The question of the use of alcoholic liquors, especially the lighter ones, in sufficient quantity to produce any stimulant or incipient narcotic effect, involves a moral question not to be discussed with propriety here. In disease the stimulant effect upon the heart is often more marked and more useful. It may increase, instead of diminishing, vascular tension, and the true stimulant action may be shown in the improvement of nervous symptoms like neuralgia or delirium. In many cases a much larger quantity can be taken than in health, without producing narcotism as indicated by flushing of the face, mental excitement, and a greater amount of elimination. The effects of the chronic use of alcohol are extensive and important. Delirium tremens is usually the result of a prolonged debauch, combined with abstinence from food.

Alcoholism undoubtedly contributes largely, though just how largely it is impossible to say, both directly and indirectly, to crime and insanity. Certain forms of neuralgia, paraplegia, and epilepsy are fairly attributable to chronic alcoholism, while it both counterfeits and causes "general paralysis of the insane." Cirrhosis of the liver is generally acknowledged to be one of its frequent results, diseases of the kidney less clearly so. It is probable that fatty degeneration of important organs, often connected with obesity, is a common consequence of its continued use.

The medical uses of alcohol are manifold. The single dose, a glass of wine for instance, is of value in approaching or actual syncope. If the utmost rapidity of action is desirable, as may occur in sudden collapse, brandy or dilute alcohol may be given subcutaneously. This is not likely to give rise to any local trouble. Its status as a food has been often discussed, and while there is no reason to suppose that it is a necessary or even desir-

able addition to a full and varied diet, it seems to have, under other circumstances, a decided value, both as promoting digestion and also as a substitute for a certain portion of food. To soldiers or laborers spirits should be given, if at all, *after* the day's work or march, and in small quantity. No spirit ration is now issued in the United States Army or Navy. In fevers and in wasting diseases alcohol finds its most extensive and most appropriate application, and is especially indicated by a feeble pulse, or sometimes by the presence of low delirium. The form of administration may vary, and even alcohol itself be given. The dose is to be regulated by the physician, and not left, under any circumstances, to the discretion of the patient or his friends. It is often given with the food, as milk-punch or egg-nog. Children in a feeble state of health often bear alcohol extremely well, and there is no sufficient reason to suppose that bad habits are formed in this way.

Externally, alcohol may be used to reduce surface temperature as an evaporating lotion, to cleanse wounds, or to harden the skin for the purpose of preventing abrasions or bed-sores.

ALLIUM.

GARLIC.

Bulbus Allii—Ail, Fr.; *Knoblauch*, G.

Although allium sativum, or garlic, is the officinal species of the genus, there are many others which possess similar properties, and of these allium cepa, or the common onion, is often used in the same way, especially in domestic practice. Garlic and onions owe their properties to volatile oils containing sulphur, somewhat irritating and of a pungent, but, to many persons, by no means disagreeable odor. The smell imparted to the secretions by these vegetables is well known. It is said that the oil may be absorbed from the skin as well as from the stomach. It is stimulant in small doses to the digestion, and also to the nervous system, and is supposed to have special action upon the bronchial tubes and their secretion. Garlic or onion is used externally as a poultice, pounded up or cut in slices. In the case of children, it may be necessary to dilute it with meal.

Dose.—Can hardly be said to be limited.

ALOE.

ALOES.

Aloe Succotrina—Aloès Sucotrin s. Socotrin, Fr.; *Socotora s. Socotrinische Aloe*, G.

ALOE PURIFICATA.

PURIFIED ALOES.

Aloès Depuré, Fr.; *Gereinigte Aloe*, G.

Several species of aloe have contributed to commerce their inspissated juice, and it is doubtful if the direction of the Pharmacopœia can or will be strictly carried out in using only the product of aloe socotrina. Purified aloes is simply the crude drug deprived of such impurities as can be removed by a sieve. This form should always be used in dispensing. All varieties of aloes contain crystalline principles closely allied to each other, which are called aloins, with a prefix derived from the name of the particular species: as barb-, nat-, and soc-aloin. If these are boiled in water they speedily become amorphous, and in this condition represent largely, if not entirely, the purgative activity of aloes. Aloes is one of the most useful of cathartics, giving rise, according to the dose, to all degrees of catharsis, from simple relief of constipation to brisk purgation. It is supposed to act chiefly on the lower intestine. Its action is slow (ten to twenty hours), and unlike some cathartics it does not need an increase of dose after prolonged use. The reputation for a long time attaching to aloes of causing piles does not seem to be altogether justified, since the constipation for which the drug is administered is a much more efficient cause. There is, however, reason to suppose that it causes congestion of the pelvic organs, and might thus increase the irritation of piles already existing. It is partly absorbed, since children have been purged by the milk of a nurse using it. Aloes is more frequently used with other drugs than alone, and forms an important ingredient in a vast number of cathartic pills, both officinal and proprietary. It probably also is used in many abortifacients.

Dose.—One-half to one grain, three to six centigrammes (.03 to .06), as a laxative in the treatment of constipation, often combined with iron, strychnia, or belladonna, as well as with other cathartics. This may be given in pill three times a day, and the frequency gradually reduced. Three to six grains, twenty to forty centigrammes (.20 to .40), is a decided laxative; and ten to twenty grains, sixty-five to one hundred and thirty centigrammes (.65 to 1.30), a brisk purgative. Several liquid preparations are used, but are very disagreeable to the taste. Aloin is from two to three times more active than good aloes, and somewhat more prompt.

ALTHÆA.

ALTHÆA.

Radix Althææ, P. G.; *Racine de Guimauve*, Fr.; *Altheewurzel, Eibischwurzel*, G.

Althæa belongs to a family (Malvaceæ), many other members of which contain in root, leaves, and fruit a considerable amount of vegetable mucus. The hollyhock and okra belong to this family. Althæa contains some thirty-five per cent. each of this mucus and of starch, so that a decoction is slightly nutritious as well as demulcent and soothing. It is used as a bland and unirritating local application in affections of the respiratory and digestive organs, also sometimes as a vehicle.

The **dose** is entirely indefinite.

ALUMEN.

ALUM.

Alumen, P. G.; *Sulphas Aluminico-potassicus—Sulphate of Aluminium and Potassium*, E.; *Alun, Sulphate d'Alumine et de Potasse*, Fr.; *Alaun, Kalialaun*, G.

ALUMEN EXSICCATUM.

DRIED ALUM.

Alumen Ustum—Burnt Alum, E.; *Alun Calciné (Desseché, Brulé)*, Fr.; *Gebrannter Alaun*, G.

The officinal alum is again the potassa-alum, instead of the corresponding ammonia salt, as in the last edition of the Pharmacopœia. Dried alum is simply the same, deprived of its water of crystallization. Alum coagulates albumen and casein, and, in the presence of an alkali, gelatine. It is antiseptic and astringent. Large doses (30 to 60 grammes, one to two ounces) produce gastro-intestinal inflammation, as shown by burning in the fauces, nausea, vomiting, and diarrhœa. It is absorbed from the stomach. Alum is used externally, as a powder, by inhalation or insufflation in various affections of the respiratory passages requiring an astringent, or as a solution in catarrhal conditions of mucous membranes, as the conjunctiva or vagina. It is better used alone, as it forms precipitates with a very large number of drugs. Alum is given by the stomach as an emetic, its action being mild but effectual. It has been supposed to possess peculiar advantages in true croup, and undoubtedly may, like other emetics, assist in the dislodgement of already loosened membrane, but does not, any

more than they, exercise a specific effect on its formation. It is a safe emetic to use in poisoning.

Dose.—Internally, five to forty-five grains, thirty centigrammes to three grammes, with sugar and flavoring. As an emetic, one or two drachms (four to eight grammes) in syrup. Externally, rather weak solutions are best, though stronger ones are not violent in their action, and may be necessary in cases of hemorrhage. One per cent., or five grains to the ounce, may be considered as the upper limit of the weaker solutions. The burnt alum may be used when a specially strong local action is desired.

ALUMINII HYDRAS.

HYDRATE OF ALUMINIUM

Alumine, Fr.; *Alumina hydrata, Argilla pura s. Hydratais. hydrica; Thonerdehydrat, Reine Thonerde.*

This tasteless powder has been used as an astringent in diarrhœal affections, especially in those where over-acidity of the stomach exists, since in these it first neutralizes the acid, and then, by its combination having become soluble, acts like other alumina salts as an astringent to the mucous membrane of the intestines. It can be used as a protective powder externally.

Dose.—Three to twenty-three grains, twenty centigrammes to one gramme and a half, in powder or mixture.

ALUMINII SULPHAS.

SULPHATE OF ALUMINIUM.

Sulphate d'Alumine, Fr.; *Schwefelsäure Thonerde*, G.

Antiseptic and astringent. Seldom used internally, although it has been employed in diarrhœal diseases. A four- or five-per-cent. solution has been used as an application to ulcers or to correct fetid discharges. A combination with sulphate of zinc or with the hydrate of aluminium and benzoin is sometimes used as a sort of weak caustic.

AMMONIACUM.

AMMONIAC.

Gummi-resina Ammoniacum — Ammoniacum, E.; *Ammoniaque, Gommresine Ammoniaque*, Fr.; *Ammoniakgummi*, G.

A gum resin containing a small amount of volatile oil. It is probably, especially when fresh, somewhat irritating to the skin and mucous mem-

branes on direct application. Its resinous and volatile constituents are eliminated through the bronchial, and perhaps the urinary mucous membranes. High authorities, however, have denied to it all activity. It is used chiefly for two purposes: in chronic bronchitis and bronchorrhœa, and as an ingredient of slightly irritant plasters. It is given in the form of pills made with soap, or an emulsion, Mistura ammoniaci, which is easily prepared by rubbing with cold water and straining. The plasters are officinal.

Dose.—Seven to sixty grains, one-half to four grammes (.50 to 4.00).

AMMONII BENZOAS.

BENZOATE OF AMMONIUM.

Has probably the same action as benzoic acid, but is more soluble. It may be used when it is desirable to render the urine acid by the formation of hippuric acid from the benzoic.

Dose.—Ten to twenty grains, sixty to one hundred and twenty centigrammes (.60 to 1.20), in solution.

AMMONII BROMIDUM.

BROMIDE OF AMMONIUM.

It has nearly the same properties as bromide of potassium, but is somewhat less active and more disagreeable to take, as well as more irritating to the stomach. It has been supposed to be somewhat less depressing, especially to the heart; but it appears that all the effects of the potash salt known as "bromism" can be obtained from the drug under consideration.

Dose.—Seven to thirty grains, one-half gramme to two grammes (.50 to 2.00), in solution, syrup or in a bitter infusion.

AMMONII CARBONAS.

CARBONATE OF AMMONIUM.

Ammoniæ Carbonas, Br.; *Ammonium Carbonicum*, P. G.; *Carbonas Ammonicus, Sal Volatile Siccum—Volatile Salt*, E.; *Carbonate d'Ammoniaque, Alkali Volatil Concret, Sel Volatil d'Angleterre*, Fr.; *Flüchtiges Laugensalz, Reines Hirschhornsalz, Kohlensäures Ammonium*, G.

The carbonate of ammonia is absorbed from the stomach and subcutaneous connective tissue. Ammonia does not reappear in any of the secretions, nor does it alkalize the urine, but it has not yet been deter-

mined what becomes of it. The carbonate is somewhat irritating, but much less so than the ammonia itself. In small doses, two to ten grains (eighteen to sixty centigrammes), it causes some increase in the force and frequency of the pulse, a sense of tightness in the head, and increased secretions and temperature. Doses of ten grains or more are likely to excite vomiting, while still larger ones give rise to the symptoms and post-mortem appearances of gastro-enteritis. Continued doses derange digestion and are followed by scorbutic symptoms like those that follow long-continued use of other alkalies, *i.e.*, hemorrhages, anæmia, diarrhœa, and emaciation. Carbonate of ammonia is used in medicine chiefly as a cardiac stimulant, and the indications calling for its use may occur in the course of almost any severe acute disease. It may be regarded as sometimes a substitute for, and sometimes as an adjuvant to, alcohol. It is in nowise, however, a nutrient. As its action is rapid and evanescent it should be given in small doses frequently repeated. Headache is often relieved by it. It is used also in syncope and slight nervous affections. For these purposes it is often inhaled, combined with some aromatic. Caution should be observed in this method of application not to continue its inhalation too long by persons in a state of unconsciousness. Its good effects in subacute or chronic bronchitis have been variously explained, but clinical experience has shown that in some way it facilitates the softening and removal of old and toughened bronchial secretions.

Dose. Three to eight grains, two to fifty centigrammes (.02 to .50), in aqueous solution, with some corrigent to cover the somewhat sharp and disagreeable taste. If prescribed in the form of powder to be dissolved at the bedside, it should be put up in wax or paraffine paper.

AMMONIUM CHLORIDUM.

CHLORIDE OF AMMONIUM.

Ammonia Muriatica, *Ammonium Aromaticum s. Hydrochloratum*, *Chloruretum Ammonicum*, *Sal Ammonicum*, *Ammoniæ Hydrochloras s. Murias*. *Muriate of Ammonia*, *Sal Ammoniac*, E.; *Chlorure d'Ammonium*, *Sel Ammoniac*, *Muriate d'Ammoniaque*, Fr.; *Salmiak*, *Chlorammonium*, G.

It dissolves freely in water, and in so doing lowers its temperature. The action of chloride of ammonium resembles, to a certain extent, that of the other ammonium salts. Doses of from five to twenty grains, thirty centigrammes to a gramme and a half, produce a sense of oppression, warmth, and uneasiness at the stomach, some fulness in the head and an increased tendency to urinate. Larger doses, or a long-continued use are

liable to disturb the digestion. It is eliminated unchanged almost entirely by the urine. This salt seems to fulfil two somewhat different therapeutic indications: first, to increase and liquefy the mucous secretions, and secondly, to act as a stimulant to the nervous system. Upon the first depends its value in bronchitis, either chronic or subacute, and in some digestive disturbances, as well as possibly in leucorrhœa and dysmenorrhœa; upon the second depends its use in neuralgia, myalgia, and headache. It may be used as an inhalation in affections of the throat and pharynx in two forms; either as a spray or in the vapor formed immediately after its production by mingling the two constituents, ammonia and hydrochloric acid, in the gaseous form. Externally it has been used for gangrene, bruises, and in inflammation of various kinds.

The property above alluded to, of reducing the temperature of water, is much increased by the addition of nitrate of potassium, and might be utilized for the production of local anæsthesia. When given by the stomach its very disagreeable taste is best masked by extract of liquorice. A very convenient form, also, is that of compressed pills, for which method of dispensing chloride of ammonium requires no excipient, though it may be combined with other drugs, as, for instance, a small dose of morphia.

Dose.—In bronchitis, three to ten grains, twenty to sixty centigrammes (.20 to .60), frequently repeated. In neuralgic affections the dose is often made larger and given less frequently.

AMMONII IODIDUM.

IODIDE OF AMMONIUM.

Ammonium Iodatum, Ioduretum Ammonium—Iodure d'Ammonium, F.; *Jodammonium*, G.

This salt shares the general properties of the alkaline iodides, but is less stable than the others, and hence is held to be more rapid and energetic in its action. It is somewhat more irritating, and is usually given in considerably smaller doses. It may be used in syphilis, scrofula, and glandular enlargements.

It should be given in solution usually, though from the smaller dose required the pill form is more eligible than for the other iodides. Externally, ointments of from thirty to sixty grains to the ounce of vehicle, six to twelve per cent., may be used.

Dose.—Two to ten grains, twelve to sixty-four centigrammes (.12 to .64).

AMMONII NITRAS.

NITRATE OF AMMONIA.

Ammoniæ Nitras, Br. Add.; *Ammonium Nitricum, Nitrum Flammans —Nitrate of Ammonia*, E.; *Azotate d'Ammoniaque, Nitre Inflammable, Nitre Ammoniacal, Sel Ammoniacal Nitreux*, Fr.; *Salpetersäures Ammon*, G.

This salt is used solely for the purpose of preparing nitrous oxide gas by heating to 185° C. (365° F.).* The gas is washed by passing through water, potassa solution, and solution of ferrous sulphate, and stored for use in a gasometer or gas-bag. It is also sometimes condensed and stored in iron bottles. It is administered by inhalation through a tube and mouthpiece, the air being excluded, and produces rapid anæsthesia, from which recovery is equally rapid. If carefully administered, it is a very safe anæsthetic for short operations; but as its power in the ordinary way of administration depends on the production of a sort of temporary asphyxia, it can be used for longer ones only by a constant succession of short administrations, from which the patient is allowed partly to recover. Hence it is much more largely used in dentistry than in general surgery. It has been shown that by the administration of nitrous oxide gas with oxygen, under increased atmospheric pressure (to which surgeons and attendants as well as the patient must be subjected), it has true anæsthetic properties, not depending upon the deprivation of oxygen and consequent asphyxia, as in the mode of administration first described, which is as yet, and will be for a long time to come, the only one in ordinary use.

AMMONII PHOSPHAS.

PHOSPHATE OF AMMONIA.

This salt has been used in gout and rheumatism without any very good reason either physiological or clinical.

Dose.—Ten to twenty grains, sixty centigrammes to one gramme and a half (.60 to 1.50), in solution.

AMMONII SULPHAS.

SULPHATE OF AMMONIUM.

Ammonium Sulphuricum, Sal Ammoniæ Secretum Glauberi—Sulfate d'Ammoniac, Sel Secret de Glauber, Fr.; *Schwefelsäures Ammon*, G.

Used solely for the preparation of other ammonia salts.

* If the heat be allowed to go much higher, a poisonous gas, dentoxide of nitrogen, is evolved. This is, however, soluble in water and removed by the washing.

AMMONII VALERIANAS.

VALERIANATE OF AMMONIA.

Valerianic acid is no longer officinal, and is represented in the Pharmacopœia by its combination with the bases ammonia and zinc. Though this acid derives its name from the plant Valeriana officinalis, it is found in a large number of other vegetable and animal substances, and is often a product of decomposition. It is also an artificial product of the oxidation of amylic alcohol, to which it bears the same relation that acetic acid does to ethylic alcohol. It is this acid (for there are several of the name differing slightly from each other, principally in degree of hydration) which is employed in the manufacture of the valerianates, and not that derived from the plant which gives them the name. Although the mildly soothing nervine and antispasmodic properties of valerian are not entirely represented by either valerianic acid or the valerianates, yet the latter are often used in the same class of cases, that is, in "nervousness," sleeplessness, and the milder hysteric manifestations, especially neuralgia, neuralgic headache, palpitation, etc. Valerianate of ammonia may be given in solution, which should be either freshly prepared or protected by alcohol. An alcoholic extract of valerian is sometimes added to the solution, which contributes to its preservation and probably increases its efficacy. The taste is less disagreeable if care is taken that any slight excess of acid is neutralized by ammonia. It may also be given in pills which can be coated.

Dose.—Two to eight grains, twelve to fifty centigrammes (.12 to .50).

AMYGDALA AMARA.

BITTER ALMOND.

Amygdalæ Amaræ, P. G.; *Semen Amygdali Amarum*—*Amandes Amères*, Fr.; *Bittere Mandeln*, G.

AMYGDALA DULCIS.

SWEET ALMOND.

Amygdalæ Dulces, P. G.; *Semen Amygdali Amarum* — *Amandes Douces*, Fr.; *Süsse Mandeln*, G.

These fruits of two varieties of the species Amygdalus Communis differ from each other by the presence in the former of the proximate principle amygdalin, which in aqueous preparations forms, with the emulsin present in both, the oil of bitter almonds and hydrocyanic acid. It is worthy of

remark that this reaction occurs in other members of the sub-order Amygdaleæ, including the officinal Prunus Virginiana and the leaves and kernels of the peach and cherry. It may perhaps account for the fact known to many farmers, that eating considerable quantities of wilting cherry-leaves is liable to be dangerous or fatal to cattle. These almonds both contain a bland and innocuous fixed oil, and may be easily emulsionized, thus forming a convenient vehicle for stronger drugs or an agreeable demulcent. The officinal Mistura amygdalæ is prepared from sweet almonds alone, and is absolutely safe. The bitter almonds which enter into the syrup of almonds, sometimes called "orgeat," impart more flavor and a minute quantity of hydrocyanic acid, but not enough to be of therapeutic value or toxic importance unless the ordinary dose be very greatly exceeded. A bread is prepared from almonds for the use of diabetic patients. These fruits are not used medicinally in substance, but the poisonous character of the bitter variety and its oil should never be forgotten.

AMYL NITRIS.

NITRITE OF AMYL.

Amylum Nitrosum, Amylæther Nitrosus—Amylo-nitrous Ether, E.; *Azotite d'Amyl*, Fr.; *Amylnitrit*, G.

Nitrite of amyl is a very rapidly acting drug. Its first and most obvious effects are usually a flushing of the face and a sudden increase in the rapidity of the pulse, with a great diminution in the arterial pressure, attended with a sensation of fulness in the head, amounting, if the dose is large enough, to severe pain and deep, labored respiration. In some cases a rapid and forcible action of the heart can be perceived a short time before the other phenomena. After the usual dose these effects pass off quite rapidly, only a few moments being consumed in the whole administration. If the action be carried beyond this, which has rarely if ever been done in man, progressive muscular weakness and diminution of reflex activity ensue, and the animal dies asphyxiated. Before death the arterial blood assumes the venous color. Nitrite of amyl diminishes the temperature and the amount of carbonic acid excreted. It is not an anæsthetic. It is usually given by inhalation, but can be administered without trouble subcutaneously, or by the mouth in solution, or dropped on a lump of sugar. As from the nature of the cases in which it is used the patient is often obliged to carry constantly with him a supply of this drug, a very convenient arrangement is the enclosure of a number of doses of five drops each in small glass capsules, which may be crushed in a handkerchief as needed, and the vapor inhaled. This plan has the further ad-

vantage, that the drug is not exposed to air and decomposition, as is very likely to happen if it is carried in a bottle. Therapeutically, nitrite of amyl has proved very successful in angina pectoris, where it was first proposed on theoretical grounds, the disease being accompanied, if not caused in many instances, by an arterial pressure too great for the heart to overcome, the pressure being relieved and the heart strengthened by the amyl. In asthma it often relieves the attack with rapidity. It is useful in a certain class of epileptic fits, that is, such as may be preceded by the aura or any characteristic sensations for a sufficiently long time to make the application of the remedy available, or in the status epilepticus. By great watchfulness and care much permanent good may be done, as well as temporary relief afforded. It may be given with advantage in epilepsy by the stomach, and in larger doses than usually employed for the first time. It has apparently proved useful in convulsions of various kinds, including puerperal. It seems probable that it may be useful in tetanus and strychnia poisoning, though there is as yet but little clinical evidence on the point. Small doses are of value in restoring the action of the heart and lungs in chloroform poisoning, but large ones will increase the asphyxia. It is also useful in some cases of dysmenorrhœa not attended with any organic lesion.

Dose.—Two to five drops, fifteen to forty centigrammes (.15 to .40), may be used at first, but considerably more is probably safe.

AMYLUM.

STARCH.

Amylum Tritici—*Wheat Starch*, E.; *Fecule* (*Amidon*) *de Froment, de Blé*, Fr.; *Stärke, Kraftmehl, Weizenstärke*, G.

The wheat starch prescribed by the Pharmacopœia is by no means the only form of starch which might be properly used in medicine. It is, however, with the possible exception of potato and corn starch, the most widely used, as isolated from the other constituents, of a vast number of articles of diet. Several of these foods containing much starch (and in the first two mentioned, also oil and gluten), such as oatmeal, barley, arrowroot, sago, and tapioca, have been included in the last edition of the Pharmacopœia, but are properly omitted in this. Regarded as a drug, starch is inert and serves simply as a protective or demulcent, as a vehicle to give coherence to more liquid preparations, or as a protective powder externally. It may be used to neutralize the irritant iodine in the stomach. For surgical purposes it is employed to make stiff bandages, preferably mixed with glue.

AMYLUM IODATUM.

IODIZED STARCH.

A preparation intended to enable iodine to be administered without irritating the stomach. It can be given in large doses and is freely absorbed, as is proved by the detection of iodine in the excretions.

Dose.—From a heaped teaspoonful to a tablespoonful, in water-gruel, three times a day. Half ounce and ounce doses have been given.

ANISUM.

ANISE.

Anise owes its properties to a volatile oil, of an agreeable and aromatic smell, which, like many other volatile oils, has a slightly stimulating effect upon the heart and digestive organs, perhaps also liquefying the bronchial secretion and promoting its removal. It relieves slighter intestinal pains, especially in children. It is sometimes used as a condiment. A strong tea may be made with the bruised seeds and given by the teaspoonful.

Dose.—In substance, ten to twenty grains, sixty-five centigrammes, to one and a half gramme (.65 to 1.50).

ANTHEMIS.

ANTHEMIS.

[Chamomile.]

Anthemidis Flores, Br.; *Flores Chamomillæ Romanæ*, P. G.; *Roman or English Chamomile*, E.; *Chamomille Romaine*, Fr.; *Römische Kamille*, G.

This drug contains a bitter principle and a volatile oil, both of which act as stimulants to the digestive organs. An infusion may be made and used freely, or the flowers may be chewed.

ANTIMONII ET POTASSII TARTRAS.

TARTRATE OF ANTIMONY AND POTASSIUM.

[Tartar Emetic.]

Antimonium Tartaratum, Br.; *Antimonii Potassio-tartras*, *Antimonium Tartarizatum*, *Tartarus Stibiatus*, P. G.; *Tartarus Emeticus*, *Stibio-kali Tartaricum*—*Tartarated Antimony*, *Tartar Emetic*, E.; *Tartrate de Potasse et d'Antimoine*, *Emétique*, *Tartre Stibié*, Fr.; *Brechweinstein*, G.

The antimonial preparations are practically represented by this drug. It is readily absorbed from the stomach, and possibly to a small extent

from the skin. It is locally irritant, producing upon the skin a pustular eruption. It is eliminated largely by the gastric and intestinal secretions, but also by the urine, and possibly by the bronchial mucous membrane. Small doses, even one milligramme, frequently repeated, disorder the digestion, giving rise to nausea, diarrhœa, and general depression. Larger ones add to these symptoms retching, vomiting, severe abdominal pain, and feeble action of the heart. Curiously enough, however, quite large doses, twenty-four grains per diem, can sometimes be given without producing vomiting. Poisoning by this drug should be treated by tannic acid in the most easily accessible form, as tea or coffee, thorough vomiting being promoted by warm water, followed by eggs, milk, and afterward the general treatment of gastritis. The medical applications of tartar emetic are much more limited than some years ago. In acute inflammatory diseases, especially pneumonia, the "controstimulant" treatment by tartar emetic possesses only a historical interest. Small doses are given in the early stage of acute bronchitis to promote the more rapid establishment of the secretion. It should not, however, be carried to the point of vomiting. As an emetic, this drug is peculiarly depressing, the nausea, general muscular and cardiac depression extending over several hours. It is particularly to be avoided in membranous croup, and, in fact, in any disease or any condition where the vital powers are diminished, as in extreme youth or old age. For producing muscular relaxation, as in the reduction of fractures and dislocations, and in rigidity of the os uteri, it is entirely superseded by ether and chloroform. It is used externally as a counter-irritant in the form of ointment or solution, which is painful and liable to leave permanent scars.

Dose.—As an expectorant and diaphoretic, one-sixteenth to one-eighth of a grain (four to eight milligrammes) (.004 to .008), once in from one to three hours. A much larger dose than this will probably nauseate. As an emetic, one grain to a grain and a half, six to nine centigrammes (.06 to .09), repeated if necessary in fifteen minutes. The wine may also be used.

ANTIMONII OXIDUM.

OXIDE OF ANTIMONY.

Stibium Oxydatum, Oxydum Antimonicum Vel Stibicum—Oxyde d'Antimoine, Fr.; *Antimonoxyd*, G.

Rarely used.

Dose.—Two to four grains, twelve to twenty-four centigrammes (.12 to .24).

ANTIMONII SULPHIDUM.

SULPHIDE OF ANTIMONY.

Stibium Oxydatum, Oxydum Antimonicum Vel Stibicum—Oxyde d'Antimoine, Fr.; *Antimonoxyd,* G.

ANTIMONII SULPHIDUM PURIFICATUM.

PURIFIED SULPHIDE OF ANTIMONY.

Not used in medicine.

ANTIMONIUM SULPHURATUM.

SULPHURATED ANTIMONY.

Antimonii Sulphuretum Aureum s. Præcipitatum, Stibium Sulfuratum Aurantiacum, P. G.; *Sulphur Stibiatum Aurantiacum, Sulphur Auratum Antimonii—Golden Sulphuret of Antimony, Golden Sulphur,* E.; *Soufre Doré d'Antimoine,* Fr.; *Goldschwefel,* G.

Very rarely employed.

Dose.—As "alterative," two grains, twelve centigrammes (.12), twice a day. As an emetic, five to twenty grains, thirty to one hundred and thirty centigrammes (.30 to 1.30).

APOCYNUM.

APOCYNUM.

[Canadian Hemp—Indian Hemp.]

Chanvre du Canada, Fr.; *Canadische Hanfwurzel,* G.

Not to be confounded with cannabis indica, also called Indian hemp. The bark develops a persistently bitter taste. In large doses an active emetic and cathartic; also increasing the secretion of the skin and kidneys. Smaller doses are laxative. It has been used especially in dropsy, but is said, like many other bitters, to be effectual also as an antiperiodic.

Dose of the powdered root, five grains, thirty centigrammes, as a (.30) tonic or antiperiodic; twenty to thirty grains, one hundred and thirty centigrammes to two grammes (1.30 to .2), as an emeto-cathartic. Decoctions of various strengths have been used.

APOMORPHIÆ HYDROCHLORAS.

HYDROCHLORATE OF APOMORPHIA.

This artificial alkaloid is an active specific emetic, producing no local irritation, but rapid and efficient vomiting, usually attended with very little preliminary nausea or depression, but rather giddiness and symptoms pointing toward disturbance in the cerebral circulation. In some instances, however, a temporary depression of the heart's vigor, and even general collapse, have occurred. No fatal but several alarming cases of this kind have been reported. Apomorphia, unlike every other emetic, is more active when given subcutaneously than by the mouth, and is given almost exclusively in this way. It can, however, be employed in the more usual way, and smaller doses than are necessary for an emetic effect have been used as an expectorant. The solution turns green upon exposure to the air.

Dose.—As an emetic for an adult, subcutaneously, one-tenth to one-fifth of a grain, six to twelve milligrammes (.006 to .012). The larger of these doses should be given by the mouth. For young children one or two milligrammes should not be exceeded.

AQUA.

WATER.

AQUA DESTILLATA.

DISTILLED WATER.

Eau Distillé, Hydrolats simple, Fr.; *Destillirtes Wasser*, G.

Distilled water is as nearly chemically pure water as can be obtained. Natural water varies from this in the amount of saline constituents in all degrees up to that of the ocean with 3.3 or more per cent., or the Dead Sea with 26.42 per cent. Some mineral springs contain five per cent. Common water is such as contains foreign substances in so small an amount as not to alter the taste and other sensible properties. A certain amount of inorganic matter does not unfit water for domestic and even some pharmaceutical purposes, but organic material, though possibly harmless, is to be looked upon, especially in thickly settled neighborhoods or near dwellings, with more suspicion. Hard water is that which contains in solution a considerable quantity of magnesia or lime, the latter frequently in the form of bicarbonate. Such water is much less useful for washing, as it does not form a good solution with soap. It may be rendered soft by the addition of a small amount of milk of lime to convert the bicarbonate into

the less soluble carbonate. Spring-water is more agreeable to drink on account of the gases, oxygen, and carbonic acid contained therein in small amount. Distilled water is "flat" from their absence. Rain-water collected after it has been falling for some time is among the purest natural waters, provided it does not come from dirty roofs or dirty cisterns. The appearance of water as regards clearness and sparkle is no criterion of its freedom from dangerous impurities. The physiological action of pure water internally, is to hasten the metamorphosis of tissue and increase the urinary and cutaneous excretions. Its action upon the kidneys and bowels is increased by salines; upon the skin by sulphur; upon the blood by iron. All sorts of combinations are found in the various mineral springs. Water is seldom avowedly used as a therapeutic agent, but under the guise of some medicinal infusion, or with the name of some spring attached, it may be of far more value than the drug or the advertisement which gives it its reputation. In cases where the urine is concentrated and acid, depositing urates in abundance and causing urethral irritation, it is of great advantage to administer water, although, as above hinted, this is usually done by "diluents" in acute cases, and some "spring water" in chronic. Thus are many "cures of Bright's disease" accomplished. In acute Bright's disease, the passage of a dilute urine through the kidneys is probably of permanent benefit by diminishing local irritation and removing débris from the kidney tubes.

The action of diaphoretics is assisted by warm water in small quantities, of emetics by large draughts of the same, and of cathartics by cold water. The extent to which common water may be made available for pharmaceutical purposes will depend upon the qualities of that which each individual pharmacist has at his command; but for test-solutions, solutions of alkaloids, and any easily decomposable substances, the distilled water should always be used, even if not called for by the prescription. For domestic infusions, boiled, filtered, or rain-water is usually even purer than is absolutely necessary. Externally the therapeutic action of water depends not only upon its chemical composition, but upon its temperature; and a proper exposition of the value and uses of the various kinds of baths would demand a treatise instead of the short essay here admissible.

AQUA AMMONIÆ.

WATER OF AMMONIA.

Liquor Ammoniæ, Br.; *Liquor Ammonii Caustici*, P. G.; *Spiritus Salis Ammoniaci Causticus, Ammonia Aqua Soluta—Ammoniaque Liquide, Eau* (*Solution, Liqueur*) *d'Ammoniaque*, Fr.; *Salmiakgeist, Aetzammoniak, Ammoniak-Flüssigkeit*, G.

AQUA AMMONIÆ FORTIOR.

STRONGER WATER OF AMMONIA.

Liquor Ammoniæ Fortior, Br.; *Strong Solution of Ammonia*, E.; *Eau d'Ammoniaque Forte*; Fr., *Starker Salmiakgeist*, G.

Is a powerful irritant to all the mucous membranes and the skin. It is probably absorbed when given sufficiently diluted by the stomach, but it does not alkalize the urine. A slightly stimulating effect upon the nervous system and secretions may be observed after small doses. A large dose is an irritant poison. The antidote is vinegar or lemon-juice. A few drops well diluted may be given in poisoning by narcotics, especially alcohol, or cardiac depressants, such as hydrocyanic acid or aconite. It may be used in syncope, either by the mouth or by inhalation, or even, in case a very rapid action is desired, subcutaneously or into a vein. The latter method of administration has been employed, especially in the bites of venomous serpents. Great care should be exercised in allowing it to be inhaled by any one in a state of unconsciousness. Externally the stronger water may be used to make a blister, which is rapidly formed and hard to heal. For milder forms of counter-irritation the ordinary water, or even a dilution of it, may be used; but the more common and convenient method is to unite it with more or less of an oily vehicle, according to the intensity of the effect desired. The ordinary liniment (one part of water of ammonia, two parts olive oil) is of a convenient strength.

Dose.—Ten to twenty drops, sixty to one hundred and twenty centigrammes (.60 to 1.20), of the weaker water, or three to six drops, twenty to forty centigrammes (.20 to .40), of the stronger, always well diluted.

AQUA AMYGDALÆ AMARÆ.

BITTER ALMOND WATER.

Aqua Amygdalarum Amararum, P. G.; *Eau d'Amandes Amères*, Fr.; *Bitter-Mandelwasser*, G.

It differs widely in strength from the preparation of the same name in the last edition of the Pharmacopœia, and also from those of other Pharmacopœias. It contains a very small amount of prussic acid, but in order to take a full medicinal dose of this poison it would be necessary to swallow a litre or quart of the water, and of course a much larger quantity before it would be dangerous. Hence it can be regarded only as a flavored water, and the dose is indefinite.

AQUA ANISI.

ANISE WATER.

Dose.—Indefinite.

AQUA AURANTII FLORUM.

ORANGE-FLOWER WATER.

Aqua Aurantii Floris, Br.; *Aqua Florum Naphæ—Eau (Hydrolat) Distillée de Fleurs d' Oranger, Eau de Naphe*, Fr.; *Orangenblüthenwasser*, G.

Has a flavor agreeable to some persons, but regarded as sickish by others.

Dose.—Indefinite.

AQUA CAMPHORÆ.

CAMPHOR WATER.

Possesses some of the stimulating properties of small doses of camphor, but cannot produce in moderate quantity the effects of large ones. Used chiefly as a vehicle, or may have some value as an addition to other more active drugs in the treatment of the milder forms of hysterical disturbance, or as an external application.

Dose.—A teaspoonful to a tablespoonful (at once), five to twenty cubic centimeters.

AQUA CINNAMOMI.

CINNAMON WATER.

Slightly astringent and stimulating. Chiefly as a vehicle.

Dose.—Indefinite.

AQUA CHLORI.

CHLORINE WATER.

Liquor Chlori, Br.; *Aqua Chlorata*, P. G.; *Aqua Chlori, Chlorum Solutum, Aqua Oxymuriatica—Solution of Chlorine*, E.; *Eau Chlorée, Chlore Liquide*, Fr.; *Chlorwasser*, G.

A solution of chlorine gas, excessively irritating to the respiratory organs. If breathed by accident, the vapor of sulphydrate of ammonia may be inhaled with great care, as an antidote, or ammonia vapor, sufficiently diluted. It is a disinfectant. It is used externally for washing the hands or other parts of the body which may have been in contact with

infectious material or dressing gangrenous ulcers; also as a gargle or a spray in the sore throat of scarlet fever, diphtheria, or similar conditions. It has, like a vast number of other disinfectants, been given in fevers of a low type on theoretical grounds, but without producing results sufficiently marked to encourage the plan.

Dose.—One to four fluidrachms, four to sixteen cubic centimeters, well diluted. For inhalation, as a spray.

AQUA CREASOTI.

CREASOTE WATER.

Disinfectant. May be used internally to check vomiting. Externally for any of the purposes for which the weaker solutions of carbolic acid are more commonly (and more economically) applied. It is useful as a wash for suppurating surfaces, and also to allay itching.

Dose.—One to four fluidrachms, four to sixteen cubic centimeters.

AQUA FŒNICULI.

FENNEL WATER.

Dose.—Indefinite.

AQUA MENTHÆ PIPERITÆ.

PEPPERMINT WATER.

Dose.—Indefinite.

AQUA MENTHÆ VIRIDIS.

SPEARMINT WATER.

Dose.—Indefinite.

AQUA ROSÆ.

ROSE WATER.

Dose.—Indefinite.

ARGENTI CYANIDUM.

CYANIDE OF SILVER.

Argentum Cyanatum—*Cyanure d'Argent*, Fr.; *Cyansilber*, G.

Is made officinal solely for the extemporaneous preparation of hydrocyanic acid.

ARGENTI IODIDUM.

IODIDE OF SILVER.

Sometimes used to get the constitutional effects of silver, but has no advantage over other preparations.

Dose.—One-third of a grain to two grains, two to twelve centigrammes (.02 to .12).

ARGENTI NITRAS.

NITRATE OF SILVER.

ARGENTI NITRAS DILUTUS.

DILUTED NITRATE OF SILVER.

Argentum Nitricum Crystallizatum, P. G.; *Azotas (Nitras) Argenticus—Azotate d'Argent, Nitre Lunaire*, Fr.; *Salpetersaures Silberoxyd, Silbersalpeter*, G.

ARGENTI NITRAS FUSUS.

MOULDED NITRATE OF SILVER.

Argentum Nitricum Fusum, P. G.; *Lapis Infernalis, Azotas (Nitras) Argenticus Fusus—Lunar Caustic*, E.; *Azotate d'Argent Fondu, Pierre Infernale*, Fr.; *Höllenstein, Geschmolzenes Salpetersaures Silberoxyd*, G.

The various forms in which the nitrate is presented have reference chiefly to its external use. For solutions the crystals are usually employed. For application in the form of stick or crayon, the addition of a small amount of the chloride, as in the Moulded Nitrate, renders the mass less liable to break off at a critical moment and produce effects beyond the control of the operator. If a less severe action is desired, the Diluted Nitrate, or "lapis mitigatus," is used. In the stomach the nitrate in medicinal doses undoubtedly suffers a change to chloride, rapid if in solution, somewhat delayed if in the solid form. Perhaps a portion may form a combination with peptones and escape decomposition. A portion of this chloride is absorbed by the aid of an excess of chloride of sodium, while another portion escapes with the feces. Larger doses, or a piece of the stick accidentally swallowed, may produce a local caustic action or be enveloped in a layer of the chloride, and thus be comparatively harmless. If such an accident occurs, common salt should at once be given, followed by an emetic. The oxide is much less irritant and may very properly be given when only the constitutional effect of the silver is desired. The

absorption of medicinal doses is, for some time at least, attended by no observable effects. After a time a staining of the skin of a sort of bluish gray color takes place. This is permanent, and after death a similar staining of many internal organs has been seen. In a few favorable cases the skin-staining is said to have disappeared after the use of iodide of potassium and hyposulphite of soda. The silver is deposited in the tissues in the form either of oxide or of solid silver. In animals symptoms indicating a paralyzing action on the cerebro-spinal centres have been observed, as well as a disorganizing effect upon the blood. A few cases somewhat similar have been seen in man; the nervous symptoms in acute cases, the hæmic in long-continued administration. Poisoning by it is extremely rare. The salts of silver, especially the nitrate, have in former times been given for epilepsy, but without decidedly beneficial results, and more recently for the various forms of cerebro-spinal sclerosis, with somewhat better success. Small doses have been given with advantage for gastralgia, possibly with a view to a local effect upon any ulceration which may exist. It has been found useful in diarrhœal affections, especially of children.

Externally the nitrate has been employed in a great variety of affections. It produces a mark at first white but afterward becoming blue-black. It has been supposed to cure and to check the spread of erysipelas, which it does not do. The solid stick, if freely used, destroys too luxuriant granulations, or by a light touch encourages sluggish ones. Ulcerations of the lower bowel, with dysenteric discharges, have been treated with success by injections, as well as by a strong solution applied by a swab or the solid stick as far up as they can be carried by the aid of the speculum. The mucous membranes of the conjunctiva, fauces, larynx, urethra, bladder, and uterus have all been subjected to the action of this salt in the solid or liquid form.

Solutions of the following strengths may be used: As a caustic in lupus, erysipelas, and other skin affections, ten to fifty per cent.; injections into the urethra or vagina, two to four per cent.; collyrium, one-half to one and three-fourths per cent. If merely an astringent or irritating effect is desired, the strength may be: For injections, two to eight per mille; enemata, four to sixteen per mille; collyria, one to five per mille. Glycerin and spiritus ætheris nitrosi may very well be used as vehicles for the stronger solutions, and tincture of opium may be added to diminish the pain. If there is danger of the caustic action going on too long or too far, a solution of common salt should immediately follow the nitrate.

Dose.—One-half grain to two grains, three to thirteen centigrammes (.03 to .13), in pill with a vegetable extract. Solutions may be used, but the taste of the salt is excessively metallic and disagreeable.

ARGENTI OXIDUM.

OXIDE OF SILVER.

Used to produce the constitutional effects of silver.

Dose.—One-half grain to two grains, three to thirteen centigrammes (.03 to .13).

ARNICÆ FLORES.

ARNICA FLOWERS.

Flores Arnicæ, P G.; *Fleurs d'Arnique*, Fr.; *Wohlverleihblüthen, Arnikablüthen*, G.

ARNICÆ RADIX.

ARNICA ROOT.

Racine d'Arnique, Fr.; *Arnikawurzel*, G.

This plant seems to be represented by a number of preparations out of all proportion to its value. It contains one ethereal oil in the flowers and another in the root, besides resins, tannic acid, and a bitter principle. None of these have been specially examined for their physiological effects. The flowers are somewhat irritating to the skin, perhaps because these usually contain the larvæ and remains of a parasitic insect. In the stomach it seems to produce symptoms pointing both to gastro-intestinal irritation and a somewhat narcotic effect upon the brain, such as headache, tremor, confusion, and even convulsions, together with frequent and feeble pulse. Arnica has been quite largely used internally, especially in many nervous diseases, as also in typhoid and dysentery. At present it is spoken of as antipyretic in large doses and stimulant in small, so that it has been used in melancholia and delirium tremens. It is also one of the immense number of drugs which have produced "decided curative effects" in rheumatism. Externally the tincture of the flowers has been freely employed as a lotion for bruises, and a few years ago enjoyed the popular reputation now bestowed upon hamamelis. Many cases have been observed where this application has caused a cutaneous inflammation of considerable severity. The tincture of the root has not been observed to cause this irritation.

Dose.—Of the powdered root, ten to thirty grains, sixty to one hundred and twenty centigrammes (.60 to 1.20). An infusion of the flowers (2 to 16 parts to 100 water) or a decoction of the root (4 parts to 100 water) may be given in tablespoonful doses.

ARSENII IODIDUM.

IODIDE OF ARSENIC.

Arsenicum (*Arsenium*) *Jodatum—Iodure d'Arsenic*, Fr.; *Arsenikjodür*, G.

The amount of iodine contained in a proper dose of this salt is entirely too small to change the action of the arsenic, and if the effect of iodine is desired in addition, it must be obtained from some other of its preparations.

Dose.—One-twentieth of a grain, three milligrammes (.003), gradually increased until the desired therapeutic effect or gastric disturbance and other signs of the full action of arsenic are obtained.

ASAFŒTIDA.

ASAFŒTIDA.

Asafœtida, P. G.; *Gummi-resina Asafœtida—Ase Fétide*, Fr.; *Stinkasant, Teufelsdreck*, G.

This is a gum-resin of a strong, peculiar, and, to most persons, disagreeable odor, due to a volatile oil. This oil is readily absorbed and imparts its characteristic smell to the excretions. It has a somewhat stimulant action on the intestinal canal and the general nervous system. The classical indication for its use is hysteria, especially those forms associated with intestinal pain, tympanites, and flatulence. Similar symptoms occurring in feeble but not hysteric persons may sometimes be treated advantageously in the same way. The enema is specially useful in this class of cases. Chronic bronchitis attended with spasmodic dyspnœa is also spoken of as being favorably affected by it. In fact, many systems of classification place this drug among the "antispasmodics." It may be given in pill, but is probably more efficacious in the form of a mixture, which is easily made by rubbing the gum with water. It is also used externally in the form of a plaster, which is slightly irritating.

Dose.—Three to fifteen grains, eighteen centigrammes to one gramme (.18 to 1).

ASCLEPIAS.

ASCLEPIAS.

Butterfly-weed, E.; *Racine d'Asclépiade Tubereuse*, Fr.; *Knollige Schwalbenwurzel*, G.

The officinal species is the best known of three which are used in medicine. It contains resins and an odorous fatty matter. It is an

emetic and purgative in large doses, but acts like many other oleo-resinous substances to increase the secretion of the skin. It is considered also expectorant, and it depresses the action of the heart. Its precise therapeutical action does not seem to be very well determined, but there is no good evidence that it possesses any special claim to its common designation of "pleurisy root."

Dose.—Twenty to sixty grains, one and a half to four grammes (1.5 to 4).

ASPIDIUM.

ASPIDIUM.

[Filix Mas—Male Fern.]

Rhizoma Filicis, P. G.; *Radix Filicis Maris—Male Shield Fern*, E.; *Rhizome (Racine) de Fougère Mâle*, Fr.; *Wurmfarnwurzel, Waldfarnwurzel, Johanniswurzel*, G.

The active principle of this long-known drug is filicic acid, which is extracted in the "oleo-resin." It is used exclusively in the treatment of tape-worm, though at the present time comparatively little in substance. It is one of the most efficient tænicides, causing a certain amount of gastro-intestinal irritation, though not extreme.

Dose.—Thirty to ninety grains, two to six grammes (2 to 6), at a single dose or divided at short intervals. The patient should have fasted for some hours, and the drug should be followed by a purgative.

ATROPINA.

ATROPINE.

[Atropia.]

ATROPINÆ SULPHAS.

SULPHATE OF ATROPINE.

[Atropiæ Sulphas.]

Atropia is the active principle of atropa belladonna. This plant also contains a second alkaloid closely akin to but not identical with atropia. This, however, does not appreciably modify its action, and as atropine has been very carefully studied, and is, moreover, comparatively regular in its action as to the relation between dose and symptoms, the description of its phenomena will be given here, and that of belladonna afterward referred to it. Atropine is rapidly absorbed and is usually administered either per

orem or subcutaneously, though it can easily, and sometimes does by accident, reach the circulation from the skin or the conjunctiva. In very small doses its action may be confined to the region where it is applied, especially the eye. A single small dose, one-sixtieth of a grain, one milligram (.001), produces on most persons hardly a noticeable effect, but in a sensitive person decided dryness of the throat and a little dilatation of the pupil. Two or three doses of this size, or a single larger one, two milligrammes (.002), will bring on these symptoms in most persons. A still larger one adds to them extreme dilatation of the pupil with loss of power of accommodation, a strong rapid pulse, and a cheerful active delirium. An eruption of a bright red color, often called scarlatiniform, is a frequent accompaniment of the larger doses and sometimes of the smaller. It is followed by desquamation. In poisonous doses the pulse becomes feeble, instead of strong as at the beginning, and death takes place by asphyxia, after a certain amount of motor paralysis, some anæsthesia, and finally coma.

When applied to the skin the sensibility is somewhat diminished at the point of application, but there is never complete anæsthesia.

The various phenomena of atropine are most simply explained by the theory, which has in its favor the facts already mentioned, besides many others which are experimental, viz.: that atropine partially paralyzes certain nerves connected with the motor system which are called inhibitory (pneumogastric), and secretory (chorda tympani and probably others); and at a later period, and to a less extent, the voluntary motor system. Besides this, it first stimulates and then paralyzes the nerves of the smooth muscular fibre, especially the vaso-motor and intestinal. In the eye the third pair and the sympathetic represent these two classes respectively, and are acted upon in the same way. In health the action upon the respiration is not so marked, but under other circumstances, especially opium-poisoning, it is a powerful respiratory stimulant.

The uses of atropine are many. Solutions of from one to four grains to the ounce (one-fifth to one per cent.), a drop or two being placed in the conjunctiva of one side, dilate the pupil and paralyze the accommodation of that side, a condition which is often useful for ophthalmoscopic examinations, as well as in treatment to diminish pain and prevent adhesions of the iris. A warning has been recently given by ophthalmic surgeons, that too strong solutions of atropine may give rise to glaucoma.

This alkaloid may be used with great advantage to check secretion, as in salivation, acute catarrh with profuse discharge, or profuse and enfeebling sweating. For the latter purpose, especially in phthisis, it is by far the most efficient means which can be employed, and is best, but by no means necessarily, given subcutaneously. The secretion of the milk may be

checked in the same way, but the external application of belladonna ointment is but slightly, if at all, effectual for this purpose, unless some abrasion exists to permit the more rapid absorption of the drug than usual. Atropine subcutaneously is one of the most rapid and certain stimulants to the heart and respiration that can be used. In opium-poisoning one-fortieth to one-twentieth, one and a half to three milligrammes (.0015 to .003), or even a larger fraction of a grain, may be given subcutaneously according to the severity of the symptoms, and especially with reference to the slowness of respiration and weakness of the pulse, and repeated as the effect passes off. In some cases of poisoning by hydrocyanic acid it may be of use, though in no wise a specific. The poisonous action of muscarin (mushroom alkaloid) is counteracted by it.

Atropine is a direct antagonist to a part of the action of calabar bean and of pilocarpine, and may be used to counteract the feebleness of the heart's action occurring with the former and the excessive secretion from the latter.

A condition of collapse with very slow or irregular, feeble pulse, coming at the termination of acute disease or under a variety of circumstances, may be looked upon as justifying the use of atropia subcutaneously in small doses. Its beneficial effects in cholera are undoubtedly due to its stimulating effect upon the centres of organic life.

As a corrigent to the disagreeable but not dangerous after-effects of morphia, atropine may be combined with it in the proportion of one to ten or eight parts.

The value of belladonna, or its alkaloid, as a prophylactic to scarlet fever cannot be regarded as established. There is, however, enough evidence in its favor to justify a careful trial under medical direction. A weak solution of atropine may be administered, regulating the dose to the age of the patient, enough to produce just perceptible effects upon the dilatation of the pupil and dryness of the throat. Children bear atropine well.

As a hypnotic, except under special circumstances by its stimulant action, atropine has little value. To relieve pain the same may be said of its use alone, though it is a useful synergist to morphia.

Some neuralgias may, however, be relieved by it, especially when injected as near as possible to the affected nerve. Painful dysmenorrhea and ovarian neuralgia may properly be treated by it, and the more so that atropia, unlike morphia, presents no attractions toward the continued use and the formation of a habit. Atropine has been injected with some temporary and local benefit into spasmodically contracted muscles. Asthma may be relieved by its hypodermic use or by the inhalation of the fumes of burning belladonna leaves. For the latter mode of administration the closely allied plant stramonium is generally used.

Incontinence of urine, especially that of children, is cured more frequently by atropine than by any other one remedy. It should be given to the production of physiological effects.

In constipation belladonna is looked upon by some practitioners as a stimulant to the peristaltic apparatus of the intestines, but this action is not intense and the belladonna usually requires to be supplemented by some drug like aloes, which has a more distinctly cathartic power. It was at one time considered to have great value in epilepsy after a long administration, but is much less used for this purpose than formerly.

Applications containing atropine, such as belladonna extract or plaster, may be used with considerable freedom externally, so long as they come in contact with unbroken skin, but care should be taken that they are not placed upon too extensive a surface of delicate or abraded skin, or brought into accidental contact with a mucous membrane.

In poisoning by belladonna, although morphia may be of some value in modifying the cerebral manifestations, it must be recollected that when the dose has become really dangerous it is no longer a stimulant but the reverse, and death takes place, as with morphia, in coma, though less intense and with a feeble pulse and asphyxia, so that a large dose of morphia at this stage would simply increase the danger of the patient.

Besides the usual precautions as to removing by emetics and cathartics any portions of poison which might remain in the intestinal canal, although in the case of the alkaloid itself being taken this would probably be small, the treatment must consist in the use of stimulants, such as ammonia and coffee, and morphia, if at all, only in small doses, not proportioned to the amount of atropia absorbed.

Dose.—For ordinary uses, one one-hundred-and-twentieth to one-thirtieth of a grain, half a milligramme to two milligrammes (.0005 to .002), in solution or pellet. In opium-poisoning the latter dose may be a little exceeded.

AURANTII AMARI CORTEX.

BITTER ORANGE PEEL.

Aurantii Cortex, Br.; *Cortex Fructus Aurantii*, P. G.; *Cortex Aurantiorum*, *Cortex Pomorum Aurantii—Ecorce* (*Zestes*) *d' Orange Amères*, *Ecorce de Bigarade*, Fr.; *Pomeranzenschale*, G.

AURANTII DULCIS CORTEX.

SWEET ORANGE PEEL.

Cortex Aurantiorum Dulcium—Ecorce (*Zestes*) *d' Oranges Douces*, Fr.; *Apfelsinenschalen*, G.

AURANTII FLORES.

ORANGE FLOWERS.

Flores Naphæ—Fleurs d'Oranger, Fr.; *Orangenblüthen, Pomeranzenblüthen*, G.

None of these are administered in substance as medicines. The bitter orange has a somewhat more active volatile oil than the others, and is used with other drugs to slightly stimulate the digestion. That mild action upon the nervous system ascribed to many volatile oils may reasonably enough be supposed to belong to all the members of this group.

AURI ET SODII CHLORIDUM.

CHLORIDE OF GOLD AND SODIUM.

This is a recent introduction to the Pharmacopœia. This salt stains the skin violet and the internal organs green. In sufficient doses it is a gastro-intestinal irritant. It is absorbed and can be found in the urine. It is said to increase the secretions, especially the saliva, resembling mercury in its action, though without the stomatitis. It has been used in syphilis, scrofula, and cancer.

Dose.—One-tenth to one-fifth of a grain, six to twelve milligrammes (.006 to .012), once or twice a day. The German Pharmacopœia states the highest dose per diem as two decigrammes.

AZEDARACH.

AZEDARACH.

[China-tree.]

Pride of India, Pride of China, E.; *Ecorce d'Azédarach, Ecorce de Margonsier*, Fr.; *Zedrachrinde*, G.

The active principle of this drug has not been isolated. It has been known for centuries to produce symptoms of narcotic poisoning, such as giddiness, mental confusion, and dimness of sight. Stertorous breathing, dilatation of the pupils, and stupor have been seen. It also produces gastro-intestinal irritation, as shown by vomiting and purging. It is used in the southern part of this country, where the tree is cultivated for ornament, as a remedy for the round-worm (ascaris lumbricoides). A decoction is used (two ounces to a pint boiled to a half pint). A tablespoonful of this is given every two or three hours until it acts as a cathartic, or the doses are given at longer intervals and followed by a purge.

BALSAMUM PERUVIANUM.

BALSAM OF PERU.

Balsamum Peruvianum Nigrum, Balsamum Indicum—Baume du Pérou, Baume des Indes, Fr.; *Peru Balsam,* G.

BALSAMUM TOLUTANUM.

BALSAM OF TOLU.

Baume de Tolu, Baume de Carthagène, Fr.; *Tolubalsam,* G.

Both of these balsams consist largely of resin, and both contain cinnamic acid. Benzoic acid, according to most authorities, is present only in the first. The aromatic and oily constituents are similar but not identical in both. Like many other drugs containing resins and volatile principles, they have a very slightly stimulant action upon the mucous membranes of the bronchi and urinary passages, as well as the circulation if in sufficient dose. They have been used in many thoracic diseases attended with chronic bronchitis, as well as in those of the genito-urinary organs. Balsam of Peru may be administered by inhalation. It is also used externally as a dressing in various excoriations, ulcers, and skin diseases, either alone or diluted with some oily vehicle. Either of these balsams may be given in emulsion with sugar, and albumen or gum or glycerin. There are several officinal preparations of tolu which, although the less active, is the most used on account of its more agreeable odor and taste.

Dose.—One-half drachm, two grammes or cubic centimeters.

BELLADONNÆ FOLIA.

BELLADONNA LEAVES.

Folia (s. Herba) Belladonnæ—Feuilles de Belladonne, Fr.; *Tollkirschenblätter, Wolfskirschen-blätter, Tollkraut,* G.

BELLADONNÆ RADIX.

BELLADONNA ROOT.

Racine de Belladonnes, Fr.; *Tollkirschen-wurzel, Wolfskirschen-wurzel,* G.

This herb belongs to a remarkable group of the solanaceæ, of which all the members contain two or more alkaloids closely resembling each other in chemistry and physiological action. They are belladonna, stramonium, hyoscyamus, and duboisia. The alkaloids of belladonna are

atropine and hyoscyamine, but the former of these is justly regarded as representing exactly the physiological and therapeutic action of belladonna and approximately that of the whole group. The fresh roots of belladonna contain a little more (0.6 per cent.) atropia than the leaves (0.44 per cent.). The berries also contain the same alkaloid, and have caused poisoning. The preparations of belladonna are of somewhat uncertain strength, and when the effect as well as the name of belladonna is really desired, it is far better for the sake of accurate dosage to use a solution or granules of atropine.

Dose.—Of belladonna leaves (seldom used in substance), one grain, six centigrammes (.06), gradually increased until an effect is produced.

BENZINUM.

BENZIN.

[Petroleum Ether—Petroleum Benzin.]

This compound of hydrocarbons has been used as an external remedy for rheumatic and neuralgic pain, itch, and for prurigo, and has also been used internally as a vermifuge for tape-worm, but in one case it has been reported to have produced the toxical symptoms of a diminished pulse and a gastro-intestinal irritation followed by death on the twentieth day. Generally it does not cause vomiting or diarrhœa.

Dose.—Five to ten drops, thirty to sixty centigrammes (.30 to .60); as a vermifuge, thirty minims, two grammes or cubic centimeters (2). It may be administered on a lump of sugar or in mucilage.

BENZOINUM.

BENZOIN.

Benzoe, P. G.; *Resina Benzoe, Asa Dulcis—Gum Benjamin*, E.; *Benzoin*, Fr.; *Benzoe*, G.

This drug contains besides the benzoic acid (twelve to twenty per cent.) already described, several resins, a little volatile oil, and sometimes cinnamic acid. Like other resins and volatile oils it has a tendency toward mucous membranes, especially the respiratory. It has been used in chronic bronchitis and in dysentery, in the latter disease rather on account of its action before absorption than after. The tincture is used externally as a protective or (mixed with water) as a mild local stimulant. It is not used in substance internally.

BISMUTHI CITRAS.

CITRATE OF BISMUTH.

Dose.—One to three grains, six to eighteen centigrammes (.06 to .18), in solution with water of ammonia or in powder.

BISMUTHI ET AMMONIÆ CITRAS.

CITRATE OF BISMUTH AND AMMONIA.

Dose.—Two to four grains thirteen to twenty-six centigrammes (.13 to .26), in solution.

BISMUTHI SUBCARBONAS.

SUBCARBONATE OF BISMUTH.

BISMUTHI SUBNITRAS.

SUBNITRATE OF BISMUTH.

Bismuthum Subnitricum, P. G.; *Bismuthum Hydriconitricum*, *Magisterium Bismuthi*, *Subazotas* (*s. Subnitras*) *Bismuthicus*—*Sous-azotate de Bismuth*, Fr.; *Basisches Salpetersaures Bismuthoxyd*, G.

Soluble salts of bismuth are by no means harmless, as has been shown in regard to the acetate, tartrate of bismuth and potassium or sodium, and the citrate of bismuth and ammonium given subcutaneously, which produce poisoning something like that from mercury or gold. Of the comparatively insoluble preparations minute quantities are absorbed and can be found in the urine. The only soluble preparation in this list, the citrate of bismuth and ammonia, is precipitated by the hydrochloric acid which it meets in the gastric juice, and is consequently reduced to the condition of the others; but as this precipitation may be incomplete, owing to an excess either of the citrate or of the acid which redissolves the precipitate, it is recommended that the dose of this preparation should never be proportioned to the extreme or even the average doses which have been used of the subnitrate. The action of the insoluble salts, subnitrate and subcarbonate, is chiefly a local one upon inflamed mucous membrane, as for instance in gastric catarrh and other affections of the stomach attended with ulceration or irritation and its consequent vomiting, and in gastro-intestinal catarrh and its consequent diarrhœa; typhoid and tuberculous diarrhœa and cholera infantum are benefited by it. The mechanical apposition of the powder upon the irritated mucous surface probably relieves or soothes the local irritability and thus checks both vomiting and diarrhœa. Therefore it follows that the administration of

the drug should be in pretty large and frequent doses given on a fasting stomach. Formerly the use of large doses produced an irritant action upon the mucous surfaces, because the drug was largely contaminated with arsenic. It is impossible to have bismuth without a small amount of arsenic, and the Pharmacopœia gives a test for comparative purity from this poison. Subnitrate of bismuth may be used in all sorts of external excoriations as a protective powder; also snuffed into the nostrils in coryza and ozæna.

Dose.—Five to ten or even twenty grains, thirty to sixty or one hundred and thirty centigrammes (0.30 to 0.60 or 1.30), given directly upon the tongue or mixed into a paste with water. Much larger doses than these have occasionally been given without unfavorable and sometimes with very beneficial results not attained with smaller doses.

BRAYERA.

KOUSSO.

Cusso, Br.; *Flores Kosso*, P. G.; *Kousso, Kusso*, E.; *Cousso, Kousso*, Fr.; *Kosso, Cusso, Kusso*, G.

Contains tannin and an acid resin, Koussin, which is probably the active principle. This usually very efficient anthelmintic is especially useful to dislodge the common tape-worm (tænia solium), and is also efficient in the case of the broad tape-worm from beef (brothriocephalus latus, tænia lata), but is apparently not so fatal to the latter. The Pharmacopœia prescribes a fluid extract and an infusion; the latter freshly prepared and given on a stomach which has been fasting for twenty-four hours generally dislodges the head in the course of twenty four hours without purging. A certain amount of intestinal irritation is often observed. An emulsion with castor-oil, egg-yolk, a few drops of ether and oil of anise makes a less nauseant mixture than does the infusion alone. It is also advisable to add a few drops (ten to twenty) of oleoresin of male fern.

Dose.—Four to six drachms, fifteen to twenty-three grammes.

BROMUM.

BROMINE.

Bromum, Br., P. G.; *Brôme*, Fr.; *Brom*, G.

(Under the name of Brominium in the old edition.)

This non-metallic element, somewhat volatile at the ordinary temperature of the air, is never used in the uncombined form in medicine, and in fact it would probably, if taken in this form, unite with the soda or

potassa found in the secretions or tissues of the body and form a neutral salt of bromide and a bromate of sodium or potassium. It is found in sea-water and in the mother-liquor of certain salt works, usually combined with calcium or magnesium. The mineral waters of Kreuznach, Kissingen in Germany, and in the western parts of Pennsylvania and Virginia, in the Ohio and Kanawha valleys, contain bromine salts. The mother-liquors of the American salt works contain about one-half of one per cent. of bromine. The water of Kissingen and of the Empire Spring of Saratoga contains a little less than one per cent. of sodium bromide. Vapor of bromine causes an intense irritation of the mucous membrane of the air-passages and of the eyes, followed by cough, hoarseness, and dyspnœa. When ingested it causes a violent irritation and caustic action on the stomach and intestinal canal. Applied upon the skin it also causes an irritant corrosive action followed by gangrenous sores. Formerly bromine was used as an antiseptic dressing in hospital gangrene and cancerous ulcerations, but its topical application causes much pain, and its use has been superseded by more efficient and less irritating escharotics. The chief medical use of bromine is in its combined salts of sodium, potassium, lithium, and calcium, all of which have a similar action upon the nervous system, a description of which will be found under the head of Bromide of Potassium.

BRYONIA.

BRYONY.

Bryone, Couleuvrée, Fr. ; *Zaunrübe, Gichtrübe,* G.

Contains a bitter principle, bryonin. Bryonia is a vesicating irritant to the skin, and, like several other officinal members of the same family, an irritant to the mucous membrane of the intestinal canal, severe enough to have in some cases caused death. Its chief use is that of a hydragogue cathartic, for the relief of dropsical or serous effusions. It has been recommended as a counter-irritant in chronic articular and muscular rheumatism and in glandular enlargements.

Dose.—Twenty to sixty grains, one to four grammes.

BUCHU.

BUCHU.

Buchu Folia, Br.; *Feuilles de Bucco,* Fr.; *Buckublätter, Buccoblätter,* G.

The buchu leaves from barosma betulina should afford about one and a half of one per cent. of a volatile oil having rather a peppermint odor, which deviates the ray of polarized light considerably to the left.

They also contain buchu camphor, a crystalline substance which has an almost pure peppermint odor, and which is soluble in carbon disulphide. An infusion of the leaves produces a mucilage which is readily miscible in dilute alcohol and partakes of the character of tragacanth mucilage, and is not properly soluble in water. Its internal use produces a sense of warmth in the stomach, especially when administered in wine, and the peculiar aromatic odor of the drug will be observed in the urine; it augments the appetite, promotes digestion, and favors the secretion of urine. The ingestion of large doses is followed by vomiting and purging. Its chief medicinal use is in pyelitis, cystitis, urethritis, and bronchitis, and in general catarrhal inflammations of the mucous surfaces.

Dose.—Fifteen to thirty grains, one to two grammes (1 to 2).

CAFFEINA.

CAFFEINE.

Although contained in tea and coffee, caffeine does not represent exactly their action, since in the one a volatile oil is naturally present and in the other aromatic substances, collectively known as cafeone, are developed by proper roasting. It is not as yet possible to distribute accurately all the activity of coffee between these two important constituents, but it is undoubtedly to the caffeine that the increased reflex activity and the increased strength of the circulation (not rapidity of pulse) is due. Large doses (twelve grains) of caffeine cause restlessness, an uncomfortable and anxious state of mind, great tremulousness of the hands and arms, and diuresis. The increased brain-power, long popularly, and apparently correctly, attributed to coffee seems to be, in part at least, due to the alkaloid. Proportionately larger doses to frogs produce convulsions like those of strychnia, and are followed by death in the same way.

Caffeine is used in medicine chiefly to relieve headache, especially nervous and that connected with chronic Bright's disease, which it often does with great rapidity. Unfortunately in many cases the susceptibility of the patient to its therapeutic action seems to be rapidly exhausted. It is also used as a diuretic and to strengthen the heart, in both of which properties it closely resembles digitalis, though less enduring in its action. For headache it may be given in powder or dissolved with a little citric acid, either by the mouth or subcutaneously. This is better than prescribing the citrate of caffeine (so called), which is not a definite salt. Guarana and the domestic cup of strong tea undoubtedly owe their power of relieving headache to this alkaloid. For action on digestion, as a general stimulant in alcohol and opium narcotism, although caffeine would undoubtedly be of value, yet the aromatic constituents present in

tea and roasted coffee are by no means to be left out of the account, and these beverages have therefore a decided advantage over the alkaloid alone.

Dose.—Two to four grains, twelve to twenty-five centigrammes (.12 to .25). Much larger doses have been given, but twelve grains are, as stated above, likely to give rise to disagreeable if not dangerous effects.

CALAMUS.

CALAMUS.

[Sweet Flag.]

Rhizoma Calami, P. G.; *Radix Calami Aromatici, Radix Acori—Sweet Flag*, E.; *Acore Vrai, Acore Odorant*, Fr.; *Kalmuswurzel*, G.

Contains volatile oil and a bitter principle. It can hardly be said to have in substance a medicinal use or a fixed dose, although small quantities may be chewed to stimulate the appetite. An infusion (one ounce to one pint) may be used.

CALCII BROMIDUM.

BROMIDE OF CALCIUM.

One of the numerous substitutes proposed for bromide of potassium (which see), and much less effective.

Dose.—Fifteen to thirty grains, one to two grammes (1 to 2), in solution.

CALCII CARBONAS PRÆCIPITATUS.

PRECIPITATED CARBONATE OF CALCIUM.

Calcis Carbonas Præcipitata, Br.; *Calcaria Carbonica Præcipitata*, P. G.; *Carbonas Calcicus Præcipitatus, Creta Præcipitata—Precipitated Carbonate of Lime*, E.; *Carbonate de Chaux Précipité, Craie Précipitée*, Fr.; *Präcipitirter Kohlensaurer Kalk*, G.

A very pure form of carbonate of lime, though not quite so fine a powder as the prepared chalk, with which it is, for all medical purposes, essentially identical. It is astringent and antacid. Used internally in diarrhœa accompanied by an acid condition of the intestinal contents; externally as a dusting powder for cosmetic purposes or to ulcers and excoriations.

Dose.—Five to sixty grains, thirty centigrammes to four grammes (.30 to 4), in mucilage.

CALCII CHLORIDUM.

CHLORIDE OF CALCIUM.

Is an active gastro intestinal irritant. Has been supposed to have a special action on the glandular system and on uterine and ovarian tumors.

Dose.—Ten to twenty grains, sixty-five to one hundred and thirty grammes (.65 to 1.30), in milk or dissolved in much water.

CALCII HYPOPHOSPHIS.

HYPOPHOSPHITE OF CALCIUM.

Calcis Hypophosphis, Br. Add.; *Calcaria Hypophosphorosa, Hypophosphis Calcicus—Hypophosphite of Lime*, E.; *Hypophosphite de Chaux*, Fr.; *Unter-phosphorigsaurer Kalk*, G.

Is supposed to owe its tonic properties to the phosphorus and its bone-forming value to the lime. It is one of the drugs which have been said to cure consumption, and in combination with the other hypophosphites (syrupus hypophosphitum) and cod-liver oil it seems to have a tonic effect in some cases, but is no specific. It is a safer method of giving phosphorus than in the metalloidal or unoxidized form, and as a bone-forming agent it is probably as efficacious as the phosphates to which it is partially transformed in the blood. It should not be prescribed with oxidizing substances, chlorate of potassium, for instance.

Dose.—Three to five grains, twenty to fifty centigrammes (.20 to .50), in solution.

CALCII PHOSPHAS PRÆCIPITATA.

PRECIPITATED PHOSPHATE OF CALCIUM.

Calcis Phosphas, Br.; *Calcaria Phosphorica*, P. G.; *Phosphas Calcicus Præcipitatus—Precipitated Phosphate of Lime*, E.; *Phosphate de Chaux Hydraté*, Fr.; *Phosphorsaure Kalkerde*, G.

The callus formed on the fractured bones of young animals is considerably heavier when this salt is given (in the form of so-called lactophosphate) than when not. The influence of phosphates on the growth and fructification of plants and the fact of their presence in excess wherever tissue-growth, either animal or vegetable, is going on most rapidly, are invoked to prove the value of this salt as a tonic. In substance, however, it is less soluble than in the form just spoken of. It is administered to pregnant women to prevent the caries of the teeth so common in this condition.

Dose.—Ten to thirty grains, sixty centigrammes to two grammes (.60 to 2), in powder.

CALENDULA.

CALENDULA.

[MARIGOLD.]

Fleur de Tous les Mois, Souci, Fr.; *Ringelblume*, G.

Contains a bitter principle and calendulin. Has been employed in the treatment of many and various diseases. Little is known of its physiological action. A strong tincture is used externally to promote the healing of wounds.

Dose.—Indefinite.

CALUMBA.

CALUMBA.

[COLUMBO.]

Calumbæ Radix, Br.; *Radix Columbo*, P. G.; *Radix Calumbo—Columbo, Calumba*, E.; *Columbo*, Fr.; *Kolombowurzel*, G.

Contains the bitter columbin and the alkaloid berberina united to columbic acid; also starch. It is a pure bitter and one of the mildest, and is used in cases of dyspepsia and enfeebled digestion to excite, like other bitters, the flow of peptic secretion. It is one of the few bitters which does not, in the form of tincture or infusion, make an unsightly mixture with salts of iron.

Dose.—Ten to thirty grains, sixty centigrammes to two grammes (.60 to 2). Not often used in substance. An infusion (one ounce to one pint) may be used, but alcohol should be added as a preservative.

CALX.

LIME.

Calcaria Usta, P. G.; *Calcaria, Calx Viva, Calx Usta, Oxydum Calcicum—Burned Lime*, E.; *Chaux, Chaux Vive*, Fr.; *Kalk, Gebrannter Kalk*, G.

Lime, before it has assumed the condition of hydrate, is an irritant and caustic, though less powerful than the alkalies.

The powder inhaled or swallowed may cause dangerous or fatal inflammation, or in the eyes severe conjunctivitis. The antidote is acetic or sulphuric acid so diluted as not to be itself an irritant. Oxalic acid might be used externally. Lime is not used internally in substance, but as lime-water is an antacid and astringent. It is used externally as a caustic and depilatory. It is an ingredient of potassa cum calce (Vienna paste). Lime in quantity is used as a means for disposing of putrefying material

and for disinfecting vaults, privies, and (in the form of whitewash) rooms. It is not antiseptic in the strict sense of the word, but its affinity for water produces rapid and thorough decomposition, while the resulting hydrate absorbs many of the products.

CALX CHLORATA.

CHLORINATED LIME.

[Chloride of Lime.]

Calx Chlorata, Br.; *Calcaria Chlorata*, P. G.; *Chloris Calcicus, Chloruretum Calcis, Calcii Hypochloris—Chloride of Lime, Hypochloride of Calcium, Bleaching Powder*, E.; *Chlorure de Chaux, Poudre de Tennant, ou de Knox*, Fr.; *Chlorkalk, Bleichkalk*, G.

Antiseptic, from the chlorine it contains in so loose a combination that it is set free by the weakest acids, even carbonic. It may be more rapidly liberated, however, by the use of a stronger acid, as sulphuric. It is used on a large scale for disinfecting sewers and drains and washing floors, walls, and clothes (it is injurious, however, to the texture). In medicine its chief use is local, a solution being applied to wounds or ulcerating or gangrenous surfaces, as in sore throat, stomatitis, or dysentery. It has, however, been used internally in some zymotic diseases.

Dose.—Internally, three to six grains, twenty to forty centigrammes (.20 to .40), in one or two ounces of water filtered and sweetened; externally, a solution of from one to four drachms to the pint (three-fourths to three per cent.) may be considered a proper strength. A one per cent. solution is suitable for a mouth-wash. As an antiseptic for floors the powder or a much stronger solution is proper. An ointment for ulcers may be made with equal parts of the excipient.

CALX SULPHURATA.

SULPHURATED LIME.

[Sulphide of Calcium.]

Sulphuret of Calcium, E.; *Sulfure de Calcium*, Fr.; *Kalkschwefelleber, Hepar Sulfuris Calcareum*, G.

Large doses of the sulphides are actively irritant to the stomach, but medicinal ones usually cause no trouble, or at most, slight. They may, however, give rise to eructations of sulphuretted hydrogen and perhaps some looseness of the bowels. The sulphide of calcium is used almost entirely for its effect on the process of suppuration, especially suppurative dermatitis, hastening the discharge of pus if already formed, and check-

ing its formation if the inflammation is still in its early stage. It may be given in pill or trituration with sugar of milk, but should be frequently renewed, as it gradually changes to the sulphate, of which in the beginning the officinal preparation partly consists.

Dose.—From one-tenth to one-half a grain, six milligrammes to three centigrammes (.006 to .03), every two or three hours. Two grains, however, have been given.

CAMBOGIA.

GAMBOGE.

Cambogia, Br.; *Gutti*, P. G.; *Gummi Resina* (*Gummi*) *guttæ, s. gutti, Gutta gamba, Cambodia—Gutte, Gomme-gutte*, Fr.; *Gummigutt, Gutti*, G.

The resin cambogic acid is the active principle. It is an active but not very irritating cathartic. In small doses it appears to act on the kidneys as well as the bowels. It is seldom given alone, but with some other cathartic, for instance, jalap and bitartrate of potassium. It may be rubbed up with sugar and water.

Dose.—One to five grains, six to thirty centigrammes (.06 to .30), as a cathartic. If a diuretic action is desired, one grain or less every hour.

CAMPHORA.

CAMPHOR.

Camphre, Fr.; *Kampfer*, G.

Locally, camphor is a somewhat mild irritant. In the mouth it produces, at first, a burning taste, and afterward a sensation of coolness, and if swallowed similar feelings in the stomach. It is absorbed from the mucous membranes and makes its appearance again in the breath and perspiration. Its action after absorption appears to be chiefly upon the brain, causing giddiness and somnolence. Fainting, delirium, convulsions, and severe coma may occur. The pulse does not seem to be constantly affected, though in some cases of poisoning it has become very feeble. The doses required to produce severe symptoms seem to vary widely. The so-called "homœopathic" solution of camphor seems to have produced faintness, giddiness, and convulsions in a number of cases. It is stated that two doses of ten drops each rendered a robust mountain guide so giddy that he was unable to proceed. The medical uses of camphor are: in the typhoid condition, where the indications are essentially the same as for alcohol, small doses being here indicated, though medium ones may be given; in some slighter nervous diseases, such as headache, palpitation, hiccup, etc.; in larger doses as a sedative it is used to repress sexual excitement, as in involuntary emissions and chordee. It may be

combined with opium, both in pill and tincture, in the treatment of diarrhœa. The officinal tinctura opii camphorata is a useful preparation where large doses are not needed. Snuffed into the nostrils either as a powder or as a vapor of the tincture dropped into hot water, it breaks up or mitigates a forming coryza. Externally it is applied to ulcers as a stimulant. Dissolved in ether it makes a cleanly, if not very powerful, local application in erysipelas. Small doses may be given in pill, larger ones in emulsion which can be made from the tincture, or the tincture can be dropped on a lump of sugar.

Dose.—Small, below five grains, thirty centigrammes (.30). Doses of one or two grains may be frequently repeated. Medium, ten to twenty grains, sixty to one hundred and twenty centigrammes (.60 to 1.20). Large, above twenty grains, one hundred and twenty centigrammes.

CAMPHORA MONOBROMATA.

MONOBROMATED CAMPHOR.

Intended to combine the sedative properties of camphor with those of the bromides. It has been used in the whole class of cases in which the bromides have been found useful, but is less efficient. It has some but not very great value as a hypnotic. It is given in sugar-coated pills or dissolved in some bland oil with alcohol or glycerin.

Dose.—Three to five grains, twenty to thirty-two centigrammes (.20 to .32), which may be soon repeated.

CANNABIS AMERICANA.

AMERICAN CANNABIS.

Chanvre Américain, Fr.; *Amerikanischer Hanf*, G.

CANNABIS INDICA.

INDIAN CANNABIS.

[Indian Hemp.]

Herba Cannabis Indicæ, P. G.; *Chanvre Indien*, Fr.; *Indischer Hanf*, G.

Neither of these drugs is used in substance, and as all the preparations are directed to be made from the Indian variety, the American must be intended for extemporaneous decoction or tincture. The narcotic properties of hemp reside in a resin, and perhaps a small quantity of volatile oil which seems to be present in the plant grown in certain localities only. The American is like the Indian in the kind of action, but is less powerful. The activity of cannabis is exerted chiefly on the brain, producing delusions and delirium of a very peculiar kind. The most characteristic ef-

fects are a condition of double consciousness and an extreme apparent prolongation of space and time. A certain amount of anæsthesia, but by no means complete, impaired locomotion, acceleration of pulse and warmth of skin are observed after moderate doses. The secretions are but very slightly affected. It is obvious that the effects of a drug acting so exclusively on the nervous system must vary very widely in persons of different race and temperament as well as mental habits. Although alarming symptoms, such as loss of consciousness, insensibility of pupils, convulsions and collapse, with cold skin and feeble pulse, have been seen, no fatal case of acute poisoning is known. The chronic use appears to lead to a gradual enfeeblement of the bodily and mental powers. Death has occurred, which seems fairly attributable to the condition induced by its long-continued use. Lemon-juice and the vegetable acids generally, are the best antidotes to an overdose.

Although it has been used in a great number of diseases, its real medical applications are not very extensive. It is said to have been of value in tetanus, and, in the continued dose, in migraine. As an anæsthetic it is of slight value, since the induction of any useful degree of anæsthesia demands a dose which would produce other and unpleasant effects. As a hypnotic it may be tried among the milder ones, but is neither powerful nor certain. With bromide of potassium it has proved useful in insane delirium. It is said to increase the activity of the uterus in labor, and has been used as a diuretic. There is no preparation of cannabis indica of which the dose can be depended on. It must be determined by beginning with a quantity known to be safe, and increasing until the effective dose is reached. It is recommended that the physician should keep a parcel of the extract of which he knows by experiment the proper dose, or that he should request some special pharmacist to do so for him and notify him when the supply is changed.

Dose.—See the preparations.

CANTHARIS.

CANTHARIDES.

[Spanish Flies.]

Lytta Vesicatoria, Fab.; *Cantharides*, P. G.; *Muscæ Hispanicæ—Spanish Flies*, E.; *Cantharides*, Fr.; *Spanische Fliegen, Canthariden*, G.

The active principle is cantharidin, soluble in a great variety of alcoholic, ethereal, and oily menstrua, and to a small extent in water. It is an active irritant, causing vesication when applied to the skin and severe gastro-enteritis when given in sufficient doses by the mouth. When absorbed either from the skin or the intestinal tract it is rapidly eliminated

by the kidneys, and causes genito-urinary irritation, which in mild cases may consist in strangury alone, but in severe and sufficiently prolonged cases is attended with suppressed or bloody urine, nephritis, and cystitis. Priapism and sexual excitement and, in the pregnant female, abortion are frequent accompaniments. The smallest recorded fatal dose was twenty-four grains. This drug is used chiefly as a rubefacient and vesicant, being employed in a vast number of diseases treated on the plan of counter-irritation or revulsion. It is the most convenient agent for making a blister, being more manageable and less painful than ammonia and easier to heal than mustard. Too large blisters should not be applied over newly formed or delicate skin lest absorption take place, nor to infants or old and feeble persons lest there be over-irritation or sloughing. A blistering plaster is usually not allowed to remain until the blister is completely formed, since the process goes on for some time after the plaster is removed. A warm poultice may accelerate its progress. The cerate, paper, and collodion are generally employed to make blisters. If it is desired to have the blister heal quickly the contents may be removed by a puncture without breaking the skin ; if the skin be accidentally broken apply a neutral ointment ; if the suppuration is to be kept up use resin or savin cerate. The tincture may be used where a lesser degree of irritation is desired, as in hair-washes. Internally cantharides is sometimes given as a diuretic, for which purpose, however, there are many safer drugs. In some atonic conditions of the urinary passages with chronic discharges or incontinence of urine, the moderately irritating action of small doses of cantharides is of value in inducing a more normal activity. It has been used criminally to induce abortion, endangering, like most fœticidal drugs, the life of the mother almost as much as that of the child. It is also sometimes surreptitiously given to excite the sexual appetite. Poisoning should be treated by emetics, possibly mild cathartics, warm water, and afterward the usual means employed in inflammations of the stomach, kidneys, and bladder.

Dose.—In substance, one to two grains, six to thirteen centigrammes (.06 to .13), in pill. The tincture is more generally given internally.

CAPSICUM.

CAYENNE PEPPER.

Capsici Fructus, Br.; *Piper Hispanicum—African or Pod Pepper*, E. ; *Capsiqua, Piment des Jardins, Piment Rouge, Poivre de Cayenne*, Fr. ; *Spanischer Pfeffer*, G.

The pepper which comes from the district of Nepaul has the finest flavor. Water, alcohol, ether, acetic acid, and the volatile oils dissolve the

active ingredients of capsicum fruit. Externally this is an intense rubefacient but not a vesicatory; the application of heat and moisture and prevention from evaporation of the volatile oil increase the irritating effects on the skin. Internally this irritates the mucous surface generally, promoting the flow of the various secretions. It is also a stimulant to the general circulation, a fine, pleasant glow immediately following its ingestion. Some of the preparations, as, for instance, the oleoresin, have a very intense action on the tissues, sometimes destroying the epithelium and exciting a severe gastro-intestinal irritation and inflammation. To counteract this tendency after an overdose of capsicum, copious use of very cold water will relieve the local irritation. Heat, even when combined with emollient preparations, will increase it. Its medical uses are in diarrhœa, dyspepsia, and, in large doses, delirium tremens. As a local application it is used in the sore throat of scarlet fever and diphtheria.

Dose.—Five to ten grains, thirty to sixty centigrammes (.30 to .60). In delirium tremens, twenty grains, one hundred and twenty centigrammes (1.20). For the latter purpose it may be put into soup, or the tincture may be used.

CARBO ANIMALIS.

CARBO ANIMALIS PURIFICATUM.

[Purified Animal Charcoal.]

CARBO LIGNI.

WOOD CHARCOAL.

Boneblack, E.; *Charbon*, Fr.; *Thier- or Knochen-Kohle*, G.

Unless care is exercised in purifying animal charcoal, a disagreeable musty or bony odor is retained, and when any substance is filtered through the charcoal it will often absorb this same odor. As this is also used to correct flatulence and absorb disagreeable stomachal gases, it is quite important that the purification shall be thoroughly done. In the latter case it would be more advisable to use wood charcoal. The only objection to the internal use of large quantities of charcoal is that of a possible accumulation in the alimentary canal; hence it is advisable to associate with it some laxative ingredient. Though it has been proposed to administer large quantities of charcoal in poisoning by the alkaloids, with the hope of absorbing and keeping the latter in an inert form, but little

reliance should be placed on this method when the advantages of the stomach-pump, emetics, and other means of rendering the alkaloids relatively insoluble are much greater. Locally it is an excellent ingredient in poultices to fetid and sloughing ulcers, and also as a dentifrice (for this purpose it should be very finely powdered and not gritty). It should be freshly prepared.

Dose.—One or more teaspoonfuls in water, or in capsules.

CARBONEI BISULPHIDUM.

BISULPHIDE OF CARBON.

[Disulphide of Carbon.]

Carboneum Sulphuratum, Alcohol Sulfuris, P. G.; *Carbonii Bisulphidum, Carbon Sulphide*, E.; *Sulfure de Carbone*, Fr.; *Schwefelkohlenstoff*, G.

The "characteristic" odor of this substance is apt, in the commercial samples, to be a very disagreeable one, and possibly some of the effects attributed to it are really due to impurities. Inhaled it is a rapid, powerful, but transient anæsthetic, producing excitement of the heart and leaving behind headache and nausea. Chronic inhalation of its vapor, which happens in some caoutchouc manufactories, produces severe disorder of the nervous and digestive system. Two or three drops internally give rise to gastro-intestinal irritation, disagreeable eructations, and dysuria. It has been used for many purposes in medicine, but there are few of these purposes for which there is not a better substitute. It can be used for the production of local anæsthesia by atomization. It has been used in the form of an ointment and in substance as a counter-irritant.

CARDAMOMUM.

CARDAMOM.

Fructus vel Semen Cardamomi Minoris, P. G.; *Cardamomum Minus, Cardamomum Malabaricum—Malabar Cardamoms*, E.; *Cardamomes*, Fr.; *Cardamomen, Kleine Kardamomem*, G.

Contains a volatile oil, and possesses the slightly stimulant properties common to drugs of this class. It is used as a carminative and stomachic. The seeds are often eaten in moderate quantity. An infusion of one drachm to half a pint (four grammes to half a liter) may be used in wineglassful doses.

CARUM.

CARAWAY.

Carvi Fructus, Br.; *Fructus Carvi*, P. G.; *Caraway Fruit or Seed*, E.; *Carvi, Cunim des près*, Fr.; *Kümmel*, G.

Contains a fragrant volatile oil. The seeds are eaten. An infusion, one drachm or two to a half pint (four to eight grammes to the litre), may be given to adults or children in colicky or flatulent affections.

CARYOPHYLLUS.

CLOVES.

Caryophyllum, Br.; *Caryophylli*, P. G.; *Caryophylli Aromatici—Girofle, Gérofle, Clous Aromatiques*, Fr.; *Gewürznelken, Nägelein*, G.

This aromatic spice is used commonly in the form of an infusion, as a digestive stimulant, or in colic. Its medicinal virtue resides in its volatile oil, which is chiefly used as a topical application on a cotton wad to a carious tooth. It contains also tannin, resin, and other less important constituents.

Dose.—Five to ten grains, thirty to sixty-five centigrammes (.30 to .65), in infusion. It may be used externally, powdered or bruised.

CASCARILLA.

CASCARILLA.

Cascarillæ Cortex, Br.; *Cortex Cascarillæ*, P. G.; *Cortex Eluteriæ, Cortex Thuris, Cascarille, Ghacrille, Ecorce Eluthérienne*, Fr.; *Cascarilla, Kaskarillrinde*, G.

Contains a bitter and a volatile oil, and, like other aromatic bitters, is used chiefly in stomachal or intestinal atony, especially in those which are combined with flatulence.

Dose.—Thirty grains, two grammes, in infusion.

CASSIA FISTULA.

CASSIA FISTULA.

[Purging Cassia.]

Fructus Cassiæ Fistulæ—Casse Officinale, Casse en Bâton, Fr.; *Purgiercassie, Fistelkassie, Röhrencassie*, G.

The sweetish (containing sixty per cent. of sugar) pulp is the portion used. This laxative is useful in small doses to relieve constipation. In

large doses it may occasion nausea and griping intestinal pain. Rarely administered alone, it is combined with other mild cathartics. The confection of senna represents a convenient and agreeable combination of this kind.

Dose.—Thirty to ninety grains of the pulp, two to six grammes.

CASTANEA.

CASTANEA.

[Chestnut.]

Folia Castaneæ—Feuilles de Châtaignier, Feuilles de Maronnée, Fr.; *Kastanienblätter*, G.

The physiological action of this drug is not known. Its chief use is in whooping-cough, and, as its taste is not disagreeable, it is a convenient placebo for children.

Dose.—Ten to sixty grains, sixty centigrammes to four grammes, given in infusion and combined with bromide of potassium and frequently repeated. The fluid extract is officinal.

CATECHU.

CATECHU.

Cutch, Terra Japonica, Catechu Nigrum—Cachou, Fr.; *Katechu, Pegucatechu*, G.

Contains varying proportions of catechuic and catechutannic acid, to the latter of which its medicinal activity is due. Several varieties of catechu of different botanical origin have the same action. Used externally and internally for its astringent properties. Its most common use in diarrhœa is in form of an infusion, tincture, or in troches. It should not be prescribed with metallic salts.

Dose.—Ten to thirty grains, sixty centigrammes to two and a half grammes (.60 to 2.50).

CAULOPHYLLUM.

CAULOPHYLLUM.

[Blue Cohosh—Pappoose Root—Squaw Root—Blueberry Root.]

Contains the glucoside saponin and resins. The former of these substances has a depressing effect upon the heart, but it is pr
present in sufficient quantity to give much activity to t

drug has little, if any, medicinal virtue, though it has been recommended as a diuretic, antispasmodic, and emmenagogue. It may be given in infusion, in doses of one to five grains, six to thirty centigrammes (.06 to .30).

CERA ALBA.

WHITE WAX.

Cire Blanche—Weisses Wachs, G.

This may be used in combination with petrolatum to render the latter more consistent and adhesive and to make a cerate.

CERA FLAVA.

YELLOW WAX.

Cera Citrina—Beeswax, Br.; *Cire Jaune*, Fr.; *Gelbes Wachs*, G.

Owes its value in medicine to its resistance to many chemical reagents and to decomposition. Its fusibility at moderate temperatures, but solidity at that of the body, make it valuable in the preparation of cerates and ointments. It has little other medicinal virtue. It contains a cerotic acid or cerin in small quantity—say about ten per cent.

CERATUM.

CERATE.

[Simple Cerate.]

Cérat Simple, Fr.; *Einfaches Cerat, Wachssalbe*, G.

This compound is used as a simple protection in healing wounds or ulcers. Petrolatum may be prescribed in the place of lard in the proportion of one to three or five parts. A cerate thus prepared has the advantage of being more emollient and is more adhesive to the skin, washing off with more difficulty than lard. A very small amount of carbolic acid added will keep off flies from the surface to which it is applied. One drop of carbolic acid to the ounce of cerate is sufficient for this purpose; two per cent. may be used. Cerates should be freshly prepared, as they all tend to become rancid in hot weather.

CERATUM CAMPHORÆ.

CAMPHOR CERATE.

This is a new preparation for the Pharmacopœia, and meets a requirement in the treatment of those skin diseases which are attended with extreme itching and which camphor tends to ameliorate. The addition of a little chloral hydrate will make this even more efficient.

CERATUM CANTHARIDIS.

CANTHARIDES CERATE.

[Blistering Cerate.]

This is a convenient form of application of cantharides for the purpose of raising a blister. The following spermaceti cerate may be applied to the blister caused by the cantharides cerate if it be desired to have it heal at once.

The size of the cantharidal application is to be prescribed by the physician, and the leather, cloth, or sticking-plaster upon which the cerate is spread should be made a little larger. It may be rendered more efficient by sprinkling powdered cantharides upon the surface.

CERATUM CETACEI.

SPERMACETI CERATE.

Onguent Blanc, Fr.; *Walrath Cerat*, G.

Used as a bland ointment in blisters, abrasions, and ulcers.

CERATUM EXTRACTI CANTHARIDIS.

CERATE OF EXTRACT OF CANTHARIDES.

Cérat d'Extrait de Cantharides, Fr.; *Cantharidenextract Cerat*, G.

This blistering cerate is preferred by some practitioners to the cantharides cerate as being more efficient.

CERATUM PLUMBI SUBACETATIS.

CERATE OF SUBACETATE OF LEAD.

[Goulard's Cerate.]

Unguentum Plumbi Subacetatis Compositum, Br.; *Unguentum Plumbi*, P. G.; *Ceratum Cum Subacetate Plumbico—Goulard's Cerate, Compound Ointment of Subacetate of Lead*, E.; *Cérat de Saturne, Saturné de Goulard*, Fr.; *Bleisalbe, Bleicerat*, G.

This cerate is astringent as well as protective, and is used to stimulate ulcerating surfaces, wounds, and superficial blisters, burns, and for surfaces irritated by chafing. It becomes rancid easily, and hence some practitioners prefer to use a glycerole of subacetate of lead in its stead.

CERATUM RESINÆ.

RESIN CERATE.

Unguentum Resinæ, Br.; *Unguentum Basilicum—Ointment of Resin, Basilicon Ointment*, E.; *Cerat de Résine Anglais*, Fr.; *Harzcerat, G.*

This is one of the most commonly used stimulating ointments for indolent ulcers.

CERATUM SABINÆ.

SAVIN CERATE.

Unguentum Sabinæ, Br., P. G.; *Ointment of Savin*, E.; *Cérat de Sabine*, Fr.; *Sadebaumsalbe*, G.

This cerate is used to prolong the secretion from blisters, setons, or issues, and also for use in indolent ulcers. Unlike cantharides, its prolonged use does not cause strangury or vesical irritation.

CERII OXALAS.

OXALATE OF CERIUM.

Oxalate of cerium sometimes controls vomiting due to reflex irritation from uterine or other nervous derangements. It is one of the drugs to be tried in this troublesome affection, but is no specific. In gastric disorders from organic disease it has little, if any, efficacy.

Dose.—One to eight grains, six centigrammes to half a gramme (.06 to .50), three or four times a day, in pill or powder.

CETACEUM.

SPERMACETI.

Chiefly of use in combination.

CETRARIA.

CETRARIA.

[Iceland Moss.]

Lichen Islandicus, P. G.; *Lichen* (*Mousse*) *d'Islande*, Fr.; *Isländisches Moos, Isländische Flechte, Lungenmoos*, G.

This is a demulcent and a feeble tonic, the latter effect being attributed to a bitter principle called cetrarin or cetraric acid. Owing to the starch contained in the moss this has some nutritious value. It is a useful remedy in catarrh of the mucous surfaces generally, whether its seat be in the bronchial, intestinal, or urinary track.

Dose.—One to four drachms, four to sixteen grammes, in decoction, for which there is an officinal formula.

CHARTA CANTHARIDIS.

CANTHARIDES PAPER.

Charta Epispatica, Br.; *Charta Vesicatoria—Blistering Paper*, E.; *Papier Epispatique, Papier à Vesicatoire aux Cantharides*, Fr.; *Spanischfliegenpapier*, G.

A convenient application for producing blister by cantharides.

CHARTA POTASSII NITRATIS.

PAPER OF NITRATE OF POTASSIUM.

This preparation is newly introduced into the Pharmacopœia, and is of use in some forms of spasmodic asthma. The paper is burnt in a saucer, in a close room, and the fumes inhaled. Among the various products of this combustion it is probable that the nitrite of potassa, having properties analogous to those of nitrite of amyl (which see), is the most efficient.

CHARTA SINAPIS.

MUSTARD PAPER.

Papier Sinapisé, Fr.; *Senfpapier*, G.

More cleanly and sometimes more convenient than the ordinary mustard poultice. For use as a counter-irritant, which, if prolonged, will raise a blister. Before application the paper should be moistened in moderately warm water, as a high heat will volatilize the active principle of the mustard.

CHELIDONIUM.

CHELIDONIUM.

[Celandine.]

Herba Chelidonii, P. G.; *Tetterwort*, E.; *Chelidoine, Herbe à l'Hirondelle*, Fr.; *Schöllkrant*, G.

Of the two alkaloids, chelidonina and chelerythrina, the latter is identical with sanguinarina, and probably is one at least of the active principles. It is interesting to note that the two plants containing this alkaloid belong to the same botanical family, which contains also others of similar properties but non-officinal.

Externally the yellow juice of this plant is a popular remedy for warts, as it is a local irritant. Internally its irritant local action excites violent purging. The fresh juice possesses the most active medicinal virtues of the plant, and may be prescribed in doses of twenty to thirty drops.

Dose.—Ten to thirty grains, sixty centigrammes to two grammes (.60 to 2), in infusion.

CHENOPODIUM.

CHENOPODIUM.

[American Wormseed.]

Fructus Chenopodii Anthelmintici, Semences de Chénopode Anthelmintique, Fr.; *Amerikanischer Wurmsamen*, G.

This indigenous anthelmintic is used to expel lumbricoid worms. The powdered seeds, which possess the active medicinal virtues, may be combined with some agreeable elixir, such as elixir aurantii, or any syrup; or the essential oil may be administered dropped on sugar or in an emulsion. A dose should be given twice a day for two or three days and followed by a cathartic. A decoction of the leaves of the plant is sometimes used instead of the officinal preparations. Improvement in the symptoms attributed to worms is often observed after the use of this drug without the parasite having been seen, whence it is inferred that it possesses tonic properties.

Dose.—Ten to forty grains, sixty-five centigrammes to two and a half grammes (.65 to 2.5).

CHIMAPHILA.

CHIMAPHILA.

[Pipsissewa.]

Prince's Pine—Wintergreen, E.; *Herbe de Pyrolle Ombellée*, Fr.; *Doldenblüthiges Harnkraut, Wintergrün*, G.

Contains tannin and several neutral principles found in other ericaceæ (see Gaultheria and Uva Ursi). This is rather an old-fashioned remedy in the treatment of rheumatic pains and the cure of indolent ulcers, in both of which its topical use in form of fomentations may accompany its internal use. It has a decidedly diuretic action, increasing the quantity of urine, diluting its solid constituents, and rendering it dark on account of the tannic acid. Its action is not unlike that of uva ursi, and is useful in disorders of the urinary passages. Its best mode of administration internally is in decoction or fluid extract.

Dose.—Thirty to sixty grains, two to four grammes, in decoction or infusion.

CHINOIDIN.

CHINOIDINE.

[Quinoidine—Amorphous Quinine.]

This residual substance contains more or less amorphous and colored alkaloids, with various products of oxidation formed in the process of manufacture. The alkaloidal contents naturally vary widely in different specimens, but may be roughly stated as from sixty to eighty per cent. in specimens which have undergone no intentional adulteration, a danger to which an amorphous and dark-colored article is especially liable.

Chinoidine may be used, dissolved in acidulated water or in alcohol, or in the form of pills, for the same purposes as the salts of the crystallized

alkaloids, but if large or accurate dosage is required, its uncertainty of composition renders it less eligible. It is to be recommended chiefly on the ground of economy.

The **Dose** may be somewhat greater than that of the crystallizable alkaloids.

CHIRATA.

CHIRATA.

Chirette, Fr.; *Chiretta*, G.

A stomachic bitter, somewhat like gentian, and belonging to the same family.

Dose.—Thirty to sixty grains, two to four grammes, in infusion.

CHLORAL.

CHLORAL.

[Hydrate of Chloral.]

Chloral Hydras, Br. Add.; *Chloralum Hydratum Crystallisatum*, P. G.; *Chloral*, E.; *Hydrate de Chloral*, Fr.; *Chloralhydrat*, G.

Hydrate of chloral is an irritant to the skin, mucous membrane, and to the tissues generally when applied topically, and sometimes provokes sloughing ulcers, hence its use hypodermically is not convenient. It is an hypnotic but not an anæsthetic in any safe dose, although originally proposed for this purpose. Its action was theoretically assumed to be due to the slow evolution of chloroform in the feebly alkaline blood by the decomposition of the chloral into formic acid and chloroform, as in the formula

$$C_2HCl_3O+KHO=KCHO_2+CHCl_3.$$

Further and more careful experimentation, however, has shown that this theory rests upon no sufficient foundation, since no chloroform can be detected in the excretions; nor is the alkalinity of the blood, which is due to carbonates, sufficient to produce this transformation. The symptoms of chloral, however, closely resemble those of the slow administration of a small amount of chloroform. Therapeutic doses produce but little effect upon the pulse, respiration or secretion, but simply a quiet sleep, from which the patient may be aroused and go to sleep again as in the natural condition. Sensation and motor activity, voluntary and reflex, are but slightly affected, but as the dose grows larger the whole nervous system gradually loses its functional activity. As under the influence of other narcotics and in poisonous doses, both the heart and respiration are

weakened and the temperature falls. Hence in dangerous narcotism from this drug the treatment should consist in cardiac and respiratory stimulants (strychnia, atropia), as well as those calculated to arouse the whole nervous system (alcohol in small doses subcutaneously, ammonia, electricity), and warmth externally, as well as flagellation. The presence of chloral in the blood probably interferes with interstitial transformations, and hence causes partial arrest of functional activity, especially of the brain, and, in large doses, of the other vital organs. The distance between a safe and a dangerous or even toxic dose is very small, and sudden death has followed the administration of doses not apparently large. For instance, a single case is recorded where collapse, syncope, and death occurred after the administration of only ten grains of chloral hydrate. Several deaths have been reported after twenty or twenty-five grains. On the other hand, doses of some hundreds of grains have caused nothing but profound sleep. Though these dangerous effects have often been attributed to impurities in the drug, yet the lesson should not be lost that this valuable remedy is occasionally dangerous to life and should be cautiously and discreetly administered, and not left to the carelessness of ignorant attendants. In certain forms of mental excitement and insomnia uncomplicated with pain, this medicine is specially indicated; and it has been used with good effect in delirium tremens from acute alcoholism. The habitual use of alcohol seems to confer a certain amount of tolerance of this drug as well as of anæsthetics. As strychnia appears to interfere with the hypnotic and other effects of chloral hydrate, it may be in a certain sense antagonistic; at any rate it may prove a valuable antidote if administered early enough to stimulate the tissues and preserve the vital activity of the nerve-centres.

Bromide of potassium and opium increase the efficiency as well as the danger of this hypnotic. The effect of the intercurrent use of strychnia and chloral is rather peculiar, in that after the administration to an animal of a large and even dangerous dose of chloral, a dose of strychnia five or six times the ordinary medicinal dose may be safely administered; and even a dose of either drug which is fatal to the same species and size of animal is not usually followed by death; yet the chloral must be the first drug administered, or a fatal effect will follow. Clinical experience, as well as experiments on the lower animals, shows also that chloral has a somewhat feeble property of controlling the tetanic spasms induced by an overdose of strychnia. It has not, however, such efficient action in this respect as the inhalation of chloroform. Chloral has a beneficial effect in benumbing sensibility in certain forms of pain, as in menorrhagia, parturition, and the muscular pains occurring after an alcoholic debauch. This effect may be theoretically explained on the basis of arresting the muscular irritability and the interstitial nutrition of muscular tissue. Its

toxic effect upon the muscular contractility of the heart is now well affirmed.

The medicinal action of chloral, in addition to its hypnotic effects, has been proved in certain forms of convulsions and spasms of a reflex character, and it may thus be prescribed in infantile convulsions, tetanus, hydrophobia, laryngismus stridulus, in whooping-cough, etc. Its action upon decayed tissue and in offensive discharges is aseptic, and it may be used for this purpose in five to ten per cent. watery solutions. In uterine cancer, injections of such a solution diminish the fetor and to some extent relieve pain. Chloral narcosis should be treated, as in other forms of narcosis, by external and internal stimulation. An obstinate and disagreeable itching rash sometimes follows the continued use of chloral and may even interfere with its use. Conjunctivitis, paronychia and purpura have also been noticed under the same circumstances.

Chloral is usually administered in solution by the mouth. It should be well diluted and the somewhat acrid taste covered by a syrup or simple elixir. It is well absorbed from the rectum, and may very conveniently be administered by enema, thus avoiding the disagreeable taste. In this case, also, it should be given in dilute solution. It has been proposed to administer it by intravenous injection as a surgical anæsthetic, and in the treatment of tetanus, but the troubles and dangers of the method seem to more than counterbalance its advantages, although there can be no doubt that complete anæsthesia may be thus produced. Experience has shown that the doses of chloral proposed when it was first introduced into practice were much too large, and the tendency has been decidedly to reduce them. Hence we may say that when administered to an adult for the first time the

Dose is from eight to fifteen grains, half a gramme to a gramme (.5 to 1), which may be once or twice repeated. Under special circumstances, like alcoholism or convulsions, the commencing dose may be larger—twenty to thirty grains, a gramme and a half to two grammes. For children a proper dose is one grain, six centigrammes (.06), for each year of age.

CHLOROFORMUM PURIFICATUM.

PURIFIED CHLOROFORM.

Chloroformum, Br.; *Chloroformium*, P. G.; *Formylum Trichloratum*, *Chloroforme Pur*, Fr.; *Reines Chloroformum*, G.

Chloroform is specially, like ether, an anæsthetic, and its action is most rapid by inhalation. As the progress of anæsthesia is described in de-

tail under the head of Ether, it is unnecessary to describe it here. Chloroform anæsthesia is more rapid and not so commonly followed by vomiting, yet the danger of death occurring very suddenly is vastly greater than that from ether inhalation, and hence the use of chloroform for this purpose should be very carefully watched; and as the pulse rarely gives sufficient warning of the approach of cardiac syncope, especially when the patient is in an upright position, this anæsthetic should never be inhaled except when the patient is lying down, and, even in this case, the appliances for resuscitation should always be close at hand, viz., galvanic battery, means for artificial respiration, the cold douche, nitrite of amyl, etc. Should syncope occur during the inhalation, the patient's body should be turned head down, as in this case the blood by gravitation may find its way back to the anæmic brain and excite its functional activity. It is almost strange to say, however, that chloroform inhalation cautiously used in parturition does not seem to be so dangerous to life, probably because it is administered in the supine position, and the constantly recurring pains prevent the brain from becoming thoroughly deprived of blood. Poisoning by chloroform taken by the stomach is not common, but occasionally happens. The local effects are irritant, but become manifest as gastro-enteritis only after the recovery of the patient from the narcotism which takes place just as if the drug had been inhaled. It has been injected deeply under the skin for the relief of various neuralgias, causing considerable local irritation. Chloroform is given by the stomach, in the dose of five to twenty drops or more, to relieve vomiting or slighter abdominal pains, as in colic or dysmenorrhœa. Cholera nostras and Asiatic cholera have been greatly benefited by it. Chloroform water, made by stirring a few drops into a tumbler of water and containing hardly more than a trace of the drug, is used to relieve an irritant cough. The officinal mixture and spirit are convenient forms. It is frequently used as a local application to the skin as a counter-irritant. It may be applied upon a piece of cloth or lint, and prevented from evaporation by additional layers of the same, producing burning which soon becomes severe, as well as local anæsthesia. It renders more rapid the penetration through the skin of other medicinal agents, as belladonna, and is frequently prescribed with them in liniments. Its solvent action upon gall-stones is displayed only in the test-tube. The relief afforded in attacks of gall-stone is a consequence of its anæsthetic and antispasmodic action.

Dose.—Five to twenty drops in syrup or mucilage or in the mistura chloroformi of the Pharmacopœia. Subcutaneously it is injected pure.

CHLOROFORMUM VENALE.

COMMERCIAL CHLOROFORM.

This cheaper form of chloroform is simply introduced for use externally or in the preparation of purified chloroform. It should not be prescribed for internal use or for inhalation.

CHONDRUS.

CHONDRUS.

[Irish Moss.]

Carrageen, P. G.; *Caragahen, Fucus Crispus—Carragaheen, Mousse Marine Périée*, Fr.; *Isländisches Moos, Perlmoos, Knorpeltang*, G.

Is chiefly used in the composition of "blanc mange," of which the nutritive value resides chiefly in the milk, and is a demulcent and very slightly nutritious substance of use in bronchial and catarrhal affections, but not so commonly used as Iceland moss, which it much resembles. Traces of iodine and bromide are too small to have a therapeutic value.

Dose.—Two to four drachms, eight to sixteen grammes, in decoction.

CHRYSAROBINJM.

CHRYSAROBIN.

[Chrysophanic Acid.]

Is probably, when taken into the stomach, and perhaps to some extent when applied to the skin, absorbed, reappearing in the urine. It appears to be, under some circumstances, but not invariably, a purgative in doses of seven grains. Its almost exclusive medicinal use is in the treatment of psoriasis, for which it is used in the form of an ointment. The officinal unguentum chrysarobini represents the maximum strength, and for delicate skins should be well (from three to five times) diluted. It turns the skin, both diseased and healthy, a dark yellowish-brown, extending usually beyond the limits of original application, and often produces a good deal of œdema, especially of the face and eyes, when the ointment is applied to the scalp. Follicular and furuncular inflammation may follow the original diffuse dermatitis. By use over small surfaces at a time some of the disagreeable effects may be avoided, but it is a remedy to be recommended with caution, the patient being fully warned of the probable effects. On the other hand, it is perhaps the most speedy and effective treatment for an obstinate disease. It has been recently asserted that its

internal use gives as favorable if not so rapid results without the disagreeable concomitants, and with a much smaller amount of the drug, a consideration of some importance in dispensary or hospital practice.

CIMICIFUGA.

CIMICIFUGA.

[SNAKEROOT.]

Black Snakeroot, Black Cohosh, E.; *Racine d'Actée à Grappes*, Fr.; *Schwarze Schlangenwurzel*, G.

Contains, when fresh, a volatile oil, a resin, and a bitter neutral substance, but it is not known to which of these its activity is due. In large doses this drug is followed by severe constitutional symptoms, such as dimness of vision, vertigo, nausea and vomiting, subsultus tendinum, and increased pulmonary and cutaneous secretion. Its action on the heart is said to be like that of digitalis, but less powerful, diminishing its frequency but increasing its force. "It stimulates the venereal appetite in man and promotes the menstrual flow in woman."

Its uses are as a stomachic tonic, also in fevers and inflammatory disorders, and in various conditions of weakened heart in order to strengthen its action. In rheumatic affections, both acute and chronic, it is said in some (but no one can predict what) cases to have a remarkably favorable effect. Chorea is mentioned as especially amenable to this treatment. Headache, facial and ovarian neuralgia, as well as the pains and other nervous symptoms connected with deficient or difficult menstruation, are benefited by it. It may be employed in the atonic form of spermatorrhœa connected with "irritable weakness." It is useful as an expectorant in bronchitis or acute catarrh and in phthisis. The preparation of the fresh root should always be used. The fluid extract is a useful officinal preparation.

Dose.—In substance (seldom used), twenty grains, one and one-third gramme. A decoction made by the general rule may be given in doses of from two-thirds of an ounce to an ounce and a half, twenty to forty-five grammes.

CINCHONA.

CINCHONA.

Cinchona, Cortex Chinæ, E.; *Quinquina*, Fr.; *Chinarinde*, G.

CINCHONA FLAVA.

YELLOW CINCHONA.

[Calisaya Bark.]

Calisaya Bark, E. ; *Quinquina Calisaya*, Fr.

CINCHONA RUBRA.

RED CINCHONA.

[Red Bark.]

Quinquina Rouge, Fr. ; *Rothe Chinarinde*, G.

No drugs have been more thoroughly studied than the cinchona barks, and they have a voluminous literature of their own. Their classification, however, to which much attention has been directed, has lost much of its importance since their alkaloids have so thoroughly taken their place in medical practice and since manufacturers base their estimate of bark upon its assay rather than on its appearance. This is especially true since it has been found that cultivation and climate change, usually for the better, the proportion of alkaloids, and that species of comparatively little value in their native place, become as valuable as others originally esteemed much more highly. The cultivation of cinchona trees has assumed considerable commercial importance in the East Indies, and it is very possible that experiment might find a suitable locality for them in this country.

The active constituents of the various barks are alkaloids of which the number is quite large, four being officinal. These are quinina, quinidina, cinchonidina, and cinchonina. They may be divided by their optical properties into two sets, quinia and quinida being fluorescent, the others not. The others are not separated for medical purposes, but are found, together with modifications of the quinina and cinchonina produced in the course of manufacture, in the amorphous products used under various names as cheaper substitutes for the pure alkaloids. Cincho-tannic, kinic, and kinovic acids are present in the bark, as well as an amorphous bitter called kinovin. Direct experiment has shown that the bark is not the best form in which to administer the alkaloids, since the latter are present in a comparatively insoluble condition, and, moreover, the amount of inert matter which must be taken in order to get an efficient dose of the alkaloids is so great that the stomach is likely to refuse it, even if the palate does not. The preparations made from the bark itself are used chiefly as tonics when small doses are required and great accuracy is not essential.

CINCHONIDINÆ SULPHAS.

SULPHATE OF CINCHONIDINE.

The presence of small quantities of other cinchona alkaloids, although in a chemical sense impurities, can hardly be considered so in a therapeutic one. Clinical observation shows that intermittent fever, which may be regarded as a sort of test of these alkaloids, can be controlled by sulphate of cinchonidine in about the same doses as are usually given of quinine. It produces in the same dose less fulness and pain in the head, tinnitus and other unpleasant symptoms. It has been less used in other fevers, but there is no reason to doubt that it shares the action of the other cinchona alkaloids.

Dose.—From a grain to fifteen grains, six centigrammes to one gramme (.06 to 1) ; three to sixty grains, twenty centigrammes to four grammes (.20 to 4), per diem, in suspension, solution, pill, or wafer.

CINCHONINA.

CINCHONINE.

CINCHONINÆ SULPHAS.

SULPHATE OF CINCHONINE.

This alkaloid has been in use many years. It has the same sort of action as the other cinchona alkaloids, but is the least active of the officinal four. It may be considered, so far as intermittent fever is concerned, the equivalent of quinina in the proportion of three to two. To be strictly accurate the dose of the sulphate should be still larger, by about seven to six. It is said to produce less effect on hearing and vision, but more frontal headache, præcordial pain and muscular weakness than quinine.

Dose.—Fifty per cent. more than quinine or cinchonidine (which see).

CINNAMOMUM.

CINNAMON.

Cortex Cinnamomi Zeylanici—*Cortex Cinnamomi Cassiæ*, P. G. ; *Cinnamomum Chinense, Cassia Cinnamomea ; Stick Cinnamon, Cassia Bark*, E. ; *Cannelle de Chine, Cannelle de Ceylon*, Fr. ; *Zimmt, Zimmtkassie, Chinesescher Zimmt, Ceylon Zimmt, Kaneel*, G.

Depends upon a volatile oil and tannin for its efficacy. The Ceylon cinnamon is the better, both in flavor and medicinal value, but it is more difficult to obtain and more expensive. The powdered cinnamon is frequently adulterated with cassia lignea, a much cheaper substance, but in stick cinnamon the adulteration is easily detected ; hence when cinnamon

tea or infusion is required by the practitioner he should prescribe it in the form of cinnamomi cortex (stick cinnamon). Cinnamon is used as an astringent in diarrhœa and in hemorrhages from the bowels or uterus, but its controlling influence in the latter hemorrhage is not great.

Dose.—Ten to twenty grains in powder, sixty-five to one hundred and thirty grammes, or in infusion (one part to sixty-four, one and a half per cent.), in doses of a tablespoonful every two hours.

COCCUS.

COCHINEAL.

Coccionella, P. G.; *Cochenile*, Fr., G.

This substance is chiefly used to impart a handsome red color to certain liquid preparations, and has little, if any, therapeutical value. It is the source of carmine. Like many other nearly inert drugs it has had a reputation in whooping-cough.

CODEINA.

CODEINE.

This alkaloid exists in opium in about the proportion of 0.3 per cent., and dissolves in about seventeen parts of boiling water, forming an alkaline solution; it is also soluble at ordinary temperatures in seven parts of amylic alcohol. So-called codeine varies in the strength of its physiological action according to the various preparations made by manufacturers. It is an hypnotic of varying and uncertain effect, and is inferior in this respect to morphine. Its internal administration sometimes causes nausea and vomiting with giddiness of the head. Its hypodermic use does not generally produce nausea. This drug, in small doses, has a quieting action upon nervous excitement, and having thus a beneficial effect upon syphilitic restlessness and malaise, is often associated with the constitutional treatment of this disease, since it does not produce such constipating effects as morphia. In toxic doses convulsions, not generally of the tetanic variety, precede death. In general it is to be looked upon as an inferior succedaneum to morphia. A combination with bromide of potassium is sometimes useful.

Dose.—For quieting effects, one-half grain, three centigrammes (.03), three times a day. One-sixth of a grain, one centigramme, causes alarming symptoms in children; one to three grains, six to twenty centigrammes, is a convenient dose to cause sleep; for hypodermic use, one to two grains, six to thirteen centigrammes, produce more soporific effects with less constitutional symptoms than the preceding dose by the mouth.

COLCHICI RADIX.

COLCHICUM ROOT.

Colchici Cormus, Br.; *Bulbus seu Tuber Colchici, Colchicum Corm—Meadow Saffron Root*, E.; *Bulbe de Colchique, de Safran Bâtard*, Fr.; *Zeitlosenknollen*, G.

This root is used chiefly for the preparation of the fluid extract and wine, and is rarely used in powder or infusion.

Dose.—Two to eight grains, thirteen to fifty-two centigrammes (.13 to .52).

COLCHICI SEMEN.

COLCHICUM SEED.

Colchici Semina, Br.; *Semen Colchici*, P. G.; *Semences de Colchique*, Fr.; *Zeitlosensamen*, G.

Both the roots and the seeds of the plant contain the bitter amorphous alkaloid colchicia. The absorption of large doses of colchicum into the blood, no matter how it may be introduced into the system, will cause in animals severe vomiting and purging, sometimes even of blood, and, probably from loss of water, the blood becomes thick and dark-colored. After death extensive congestion of the alimentary canal and of the kidneys is found. Externally upon man its application to the skin produces redness and a prickling sensation, and upon the tongue a sense of burning and an acrid taste. This drug is long known to have been an useful remedy in gout, but its mode of action is still uncertain. Experience has shown, however, that its virtues are not dependent upon large but upon small doses, in acute rather than in chronic gout. Authorities differ as to its effect upon the organs of elimination, but it is pretty fair to assert that moderate doses increase the elimination of uric acid, and in a slight degree that of urea by the kidneys, while it is not necessary to provoke purging to obtain the efficiency of the drug. The use of the remedy abates the force and diminishes the frequency of the heart's action, and thus in old age must be attended with caution, since a continued use of moderate doses required to produce the therapeutic effects of the drug may be followed by prostration and sometimes collapse. The effects upon the gastro-intestinal canal may be moderated by opium. Administration with alkaline diuretics, especially lithia, is to be recommended.

Dose.—Two to ten grains, thirteen to sixty-four centigrammes (.13 to .64). The most commonly used preparation is that of wine of the root or seed, though by many the dried cormus is deemed the most efficient.

COLLODIUM.

COLLODION.

Collodion, Fr. ; *Collodium*, G.

The use of collodium is for surgical wounds and for protection of abraded surfaces, especially in fissures of the lips and nipples. Its application to the *dry* surface causes the adherence of a thin film or pellicle, but the ether and alcohol cause a severe burning or smarting pain to these fissures or abrasions, which soon passes off. The evaporation of ether and alcohol causes a contraction of the wet collodion, and this effect may be taken advantage of in cases where a contraction of the tissues is desired, as for instance in carbuncular sores, where the application should be first made on the outer circumference of the swelling, and thereafter on drying, other coats of contracting collodium be applied. Collodium is also useful for the solution of certain substances, as cantharides, iodine, capsicum, aconitin, veratrin, atropin, tannin, chloride of iron, sulphate of iron, carbolic acid, camphor, iodide of zinc or mercury, chromic acid, etc., when their topical action is required, though in this case the flexible collodium may be preferred. All collodions are highly inflammable.

COLLODIUM CUM CANTHARIDE.

COLLODIUM WITH CANTHARIDES.

[Cantharidal Collodion.]

Collodium cum cantharide is useful when a patient is inclined to remove a blister, and also when the weight or bulk of the ordinary plaster is inconvenient.

COLLODIUM FLEXILE.

FLEXIBLE COLLODIUM.

As the flexible collodium does not shrink on drying, it should be used in preference to collodium when no contraction of the tissues is desired.

COLLODIUM STYPTICUM.

STYPTIC COLLODIUM.

This solution of tannin may be applied to staunch the bleeding from an open wound.

The great difficulty in the way of the surgical use of all the collodions is the slight trace of moisture which it is difficult to remove from the skin, and the secretions from the wound or the perspiratory glands forming underneath the impervious film and detaching it.

COLOCYNTHIS.

COLOCYNTH.

Coloquintida—Bitter Apple; Coloquinte, Fr.; *Koloquinten*, G.

A bitter principle called colocynthin is contained in the colocynth in the proportion of one-fourth per cent., and is a violent purgative. Colocynth is a powerful drastic hydragogue cathartic, and in large doses it produces an increased flow of bile from the bile-duct. In very large doses the whole alimentary canal may be violently irritated, causing nausea, vomiting, serous or bloody stools accompanied by severe griping pains, which may be succeeded by peritonitis or death. Colocynthin is one of the very few cathartics which produce some action when injected subcutaneously. It is rarely used alone.

Dose.—Three to eight grains, nineteen to fifty centigrammes (.19 to .50), and even ten grains, sixty-five centigrammes, used cautiously.

CONFECTIO ROSÆ.

CONFECTION OF ROSE.

Confectio Rosæ Gallicæ, Br.; *Conserva Rosarum, Conserve de Rose Rouge*, Fr.; *Rosenconserve*, G.

Is used simply as a basis for making pills, though its use in aphthæ of the mouth is not uncommon.

CONFECTIO SENNÆ.

CONFECTION OF SENNA.

Electuarium e Sennâ, P. G.; *Electuarium Lenitivum—Lenitive Electuary*, E.; *Electuaire de Sené Composé, Electuaire Lenitif*, Fr.; *Sennalatwerge*, G.

A laxative basis for cathartic or purgative pills. In large doses alone it acts upon the bowels, and is a useful laxative for pregnant women and in habitual constipation.

Dose.—One or two drachms, four to eight grammes.

CONIUM.

CONIUM.

[Hemlock.]

Hemlock Fruit, E.; *Fruits de Grande Ciguë*, Fr.; *Schierlingsfrüchte*, G.

The activity of this drug depends upon a liquid volatile alkaloid, conia. The present edition of the Pharmacopœia very wisely drops from its list

the leaves of conium, which furnished a totally untrustworthy class of preparations, with the exception of the "succus" prepared from the *green* leaves, and consequently not easily obtained in quantity in this country. The action of conium consists in producing motor paralysis without loss of consciousness or sensation. In fatal cases convulsions sometimes occur. Death takes place by asphyxia from paralysis of the muscles of respiration. The earliest symptoms are drooping of the eyelids, sometimes giddiness and diplopia, muscular weakness, and a desire to lie down, not necessarily to sleep. These effects should be looked for in from half an hour to an hour and a half after the administration of the drug by the stomach, or a little sooner if given subcutaneously. Patients acquire quite rapidly a tolerance of conium. Active and muscular persons resist its action better than feeble and sluggish ones, and a certain degree of voluntary resistance is also possible. The medical uses are to diminish muscular excitability, as in various local spasms, chorea, and mania with great motor excitement. To relieve pain it has little or no power unless the pain depends on spasmodic muscular action. The alleged "resolvent" effects of conium, both externally and internally, on cancers and other tumors are, to say the least, doubtful. A poultice of the leaves may, of course, have the same effect as any warm and moist application. The alkaloid has been used hypodermically in the form of acetate. Its dose is stated to be one-sixtieth of a grain, one milligramme (.001), but considerably larger ones up to one-tenth of a grain, six milligrammes, have been given. The best preparation is the fluid extract. The dosage of all the preparations (conia included) should be regulated by the effects, beginning with a safe dose.

Dose in substance. But few of the books state a dose of the seeds, from which it may be inferred that they are seldom used. From the doses of the leaves and the preparations given it would be safe to say one to five grains, six to thirty-two centigrammes (.06 to .32). This would, in the great majority of cases, be entirely inefficient (see the preparations, especially the fluid extract).

COPAIBA.

COPAIVA.

Balsamum Copaivæ, P. G.; *Balsam Copaïvi*—*Balsam Copaiva*, E.; *Copahu, Oléo-résine* (*Baume*) *de Copahu*, Fr.; *Copaivabalsam*, G.

Consists of a volatile oil and an acid resin. Copaiva acts especially upon the mucous surfaces, by which it is eliminated, increasing their various secretions, but after its continuous use or in large doses it may provoke irritation of the gastro-intestinal surface, causing nausea and diarrhœa. The same is true of the mucous membrane of the bladder

and urethra, which may be also irritated, even to producing a flow of bloody urine. When copaiba is given to the healthy man in moderate doses not long continued, the urine becomes copious and its solid ingredients diluted. The constituents of the drug can be detected therein. The not very infrequent occurrence of an exanthematous cutaneous eruption closely resembling measles is a circumstance of which the practitioner should be aware.

The balsam of copaiba is most generally used in the treatment of catarrh of the mucous membrane both of the bronchi and bladder, with its appendages, but it is specially used in chronic gonorrhœa of the man. Since it is eliminated by the kidneys and bladder it is not an efficient remedy in gonorrhœa of women (vaginitis) unless the urine voided be used as a vaginal douche, an expedient which is of more value as a physiological experiment than as a practical means of treatment. In vesical catarrh it is often a useful remedy, especially if the inflamed mucous surface be at the neck of the bladder, as in parturient women. Copaiva is most conveniently administered in gelatin capsules or in emulsion. The resin has been found more efficient as a diuretic than the balsam itself. It is also beneficial in catarrh of the rectum or inflamed piles, either by the mouth or in suppository. It has been used externally as an application to ulcers and fissures.

Dose.—Ten drops to one drachm, sixty centigrammes to four grammes.

CORIANDRUM.

CORIANDER.

Coriandri Fructus, Br.; *Fructus Coriandri*, P. G.; *Coriander Fruit*, E.; *Coriandre*, Fr.; *Koriander*, G.

Contains a volatile oil. Aromatic, stimulant, and carminative, and useful as a culinary condiment. It is contained in confectio sennæ, mistura gentianæ, syrup et tinctura rhei, tinctura sennæ.

Dose.—Twenty to sixty grains, one to four grammes.

CORNUS.

DOGWOOD.

Ecorce de Cornouiller à Grandes Fleurs, Fr.; *Grossblüthige Cornelrinde*, G.

Contains a bitter neutral principle. Two other species, C. circinata and C. sericea, possess analogous properties. An astringent tonic and feeble stimulant to the stomach; large doses are apt to irritate the stomach and

produce nausea. Its relations to malarial fevers are not different from those of many other bitters and do not at all resemble those of cinchona.

Dose.—Twenty to sixty grains, one to four grammes, in hot infusion or in decoction.

CREASOTUM.

CREASOTE.

Kreosotum, P. G.; *Créosote*, Fr.; *Kreosot*, G.

An exceedingly complex substance, containing many hydrocarbons, some of which are closely allied to carbolic acid. Creasote is an astringent and narcotic. Its action upon the heart, respiration, venous system, and secretions closely resembles that of carbolic acid. Its local action is aseptic, styptic, and escharotic; hence it is an useful application in dental caries to arrest a toothache or bleeding from the pulp. Its internal administration is useful in nausea and vomiting caused by reflex irritation, as in pregnancy, cholera, sea-sickness, etc. It arrests intestinal hemorrhage, chronic gonorrhœa, and gleet. A solution in water of one to one and a half per cent. makes an useful wash in salivation, as also in chilblains and facial erysipelas, and one-fifth of one per cent. by injection prevents the decomposition of urine in the bladder. If intended for use with oxide of silver in pills, it should first be mixed with licorice or other powder, or the mass will take fire (Squires).

Dose.—One to three minims, six to eighteen centigrammes (.06 to .18), in weak mucilage, broth or aromatic waters, in proportion of one-third of one per cent., or one minim to two hundred and forty minims.

CRETA PRÆPARATA.

PREPARED CHALK.

Craie Préparée, Fr.; *Präparirte Kreide*, G.

Prepared chalk is an antacid, and by its mechanical adherence soothes the irritated mucous membrane. Its general use for this purpose has been somewhat superseded by powdered bismuth, yet it is a valuable remedy in diarrhœa from intestinal catarrh, especially when associated with opiates and astringents, but the bowels should first be thoroughly evacuated or the use of the chalk mixture will do more harm than good. Chalk is a good antidote to oxalic acid poisoning. Acids and sulphates are incompatible with chalk.

Dose.—Ten to sixty grains, sixty-five centigrammes to four grammes.

CROCUS.

SAFFRON.

Safran, Fr., G.

Contains a volatile oil and coloring matter. Like other aromatic plants, it is a slight gastro-intestinal stimulant. It is stated to have caused death, with symptoms of narcotism. Its hot infusion produces diaphoresis, and the saffron color is eliminated both by the sweat and urine, and from this cause it is a popular remedy in acute exanthematous diseases, though its remedial action is at least doubtful. The "saffron tea" supposed to "drive out" measles is usually made from carthamus tinctorius, or safflower.

Dose.—Five to twenty grains, thirty to one hundred and thirty centigrammes, in infusion.

CUBEBA.

CUBEB.

Cubebæ, P. G.; *Fructus seu Baccæ Cubebæ, Piper Caudatum—Cubebs*, E.; *Cubèbe, Poivre à Queue*, Fr.; *Kubeben*, G.

Cubeb contains a volatile oil, an indifferent resin, and the resinous cubebic acid, the latter of which is probably the most important constituent so far as its action on mucous membranes is concerned, while the volatile oil is probably the cause of gastro-intestinal symptoms after large doses. Its action upon the intestinal tract and the circulation closely resembles that of other aromatics. It is less likely to derange the digestion than copaiba, but if given for a long time or in too large doses it is liable to cause nausea and vomiting. It may produce a cutaneous rash like that from copaiba. Its active principles are absorbed and eliminated from the mucous membranes of the urinary and bronchial passages. It is used chiefly in gonorrhœa, being less irritating and probably less efficient than copaiba. If the gonorrhœa is in the active inflammatory stage the dose should be small, fifteen grains, one gramme, rather than large, thirty grains, two grammes. It is also employed as a "local alterative" in non-specific affections of the genito-urinary tract. In chronic bronchitis and naso-pharyngeal catarrh it is also employed. It probably affects the mucous membrane involved, both directly and indirectly, when first taken, and afterward on its passage outward in the process of elimination. It may be administered in powder mixed with water, with sugar, or enclosed in wafer or in troches. The fluid extract or oleoresin may

be given in mixture or in capsules. The fruits themselves may be chewed to relieve an irritable cough, or be bruised and smoked in a pipe or cigarette.

Dose.—Small, fifteen grains, one gramme ; large, thirty grains, two grammes.

CUPRI ACETAS.

ACETATE OF COPPER.

Used chiefly for its astringent properties as an injection for subacute gonorrhœa. The subacetate or impure acetate or verdigris is a violent irritant poison when ingested. Its local action is stimulant and escharotic. For urethral injection the strength should be only one grain to the ounce, or one-fifth of one per cent., but the acetate has no especial advantage over the sulphate for this disease. It is rarely used internally, in doses of one-fourth to one grain, sixteen milligrammes to six centigrammes (.016 to .06).

CUPRI SULPHAS.

SULPHATE OF COPPER.

Cuprum Sulfuricum Purum, P. G. ; *Sulfas Cupricus, Cuprum Vitriolatum—Blue Vitriol, Bluestone*, E. ; *Vitriol Bleu, Sulfate de Cuivre*, Fr. ; *Kupfervitriol, Blauer-vitriol, Schwefelsaures Kupfer* (*Kupferoxyd*), G.

Sulphate of copper is a valuable and rapid emetic, acting by a local irritation on the walls of the stomach ; hence in removing poisonous contents of the stomach it is the most eligible of this class. It is specially valuable in phosphorus poisoning, as it forms a comparatively insoluble phosphide of copper. It has no specific action in croup, but is much to be preferred to tartar emetic. For its local astringent properties upon the mucous surfaces it is useful in chronic granular inflammation, especially of the eyelids (conjunctivitis), rectum, urethra, and vagina, and in prurigo genitalium. Its internal use in diarrhœa is well known. In epilepsy and chorea it has been attended with some success, but its precise physiological action in nervous disorders is not well understood, and by some authorities its benefit is strongly doubted. Sulphate of copper is a poison from its local irritant action, but to provoke vomiting one large rather than several small doses should be preferred. In cases of irritant poisonous action, bland and emollient drinks, as white of eggs and milk, should be used. Its local astringent action may be utilized by application of a clean and

smooth stick of *bluestone* or by a weak injection (one-fifth of one per cent.) in water or lotion.

Dose.—For emesis, two to ten grains, thirteen to sixty-five centigrammes (.13 to .65), and for its continued astringent action on the gastro-intestinal mucous membrane, one-fourth to one-half grain, sixteen to thirty-two milligrammes (.016 to .032), used cautiously.

CYDONIUM.

QUINCE SEED.

Semen Cydoniæ, P. G.; *Sémenées des Coings*, Fr.; *Quittensamen, Quittenkèrne*, G.

Chiefly useful in the form of mucilage, as a soothing, bland external application in abrasions of the skin or fissures of the mucous membrane; also internally as a soothing application to the throat or bowels. Bandoline, used in dressing the hair, is a mucilage of quince seeds.

Dose.—Indefinite.

CYPRIPEDIUM.

CYPRIPEDIUM.

Rhizoma Cyprepedii—Ladies' Slipper Root, E.; *Racine de Cypripède Jaune, Valériane Americaine*, Fr.; *Gelbfrauenschuh-wurzel*, G.

A popular soothing remedy for nervous derangements, the benefit of which is perhaps due to volatile oils and resins contained in the plant. It is compared to valerian, but said to be less powerful.

Dose.—Fifteen to thirty grains, one to two grammes. The so-called cyprepedin of the eclectics is given in doses of from half a grain to three grains.

DECOCTA.

DECOCTIONS.

The very considerable number of decoctions in the former editions of the Pharmacopœia is, properly enough, reduced to two, since they cannot be kept on hand, are very likely to be substituted by dilute fluid extracts, and for some of the purposes for which decoctions are made it is better that they should be fresh and warm. The general rule of the Pharmacopœia is amply sufficient whenever it is desired that the pharmacist should make the decoction without specific directions, and throws the responsibility of the dosage where it belongs—upon the physician.

DECOCTUM CETRARIÆ.

DECOCTION OF CETRARIA.

[Iceland Moss.]

Tisane (Decocté) de Lichen d'Islande, Fr.; *Isländisch Moos Absud (Decoct.)*, G.

A little stronger than in the old edition. Bitter and demulcent.

Dose.—Two to four ounces, one to two wineglassfuls, sixty to one hundred and twenty grammes, three or four times a day.

DECOCTUM SARSAPARILLÆ COMPOSITUM.

COMPOUND DECOCTION OF SARSAPARILLA.

Decoctum Sarsæ Compositum, Br.; *Tisane (Apozème) Sudorifique, Décocté de Salsepareille Composé*, Fr.; *Zusammengesetzes Sarsaparilla Decoct.*, G.

It seems customary to mention in this connection Zittmann's decoction, which this resembles in the presence of sarsaparilla but differs from in many other respects, especially the absence of mercury. It is diaphoretic and is used in chronic rheumatism, syphilis, and chronic skin diseases.

Dose.—Four to six ounces, two or three wineglassfuls, two hundred and forty to three hundred grammes, several times a day.

DIGITALIS.

DIGITALIS.

[Foxglove.]

Digitalis Folia, Br.; *Folia Digitalis*, P. G.; *Digitalis Leaves, Foxglove Leaves*, E.; *Feuilles de Digitale Pourprée (de Grande Digitale)*, Fr.; *Fingerhutkraut*, G.

The active principles of digitalis have been the subject of much study, which has not as yet led to any intelligible and decisive result. It may be stated with some confidence that neither the digitalin of the last edition of the Pharmacopœia nor any others of the same name, with one possible exception (the crystalline digitalin of Nativelle), is a pure active principle, although they may represent pretty accurately, but in varying doses, the action of the drug. It seems very probable that digitalis possesses several active principles, chiefly glucosides, which are closely allied to each other, and some of which are soluble in water and some in alcohol, so that both the tincture and infusion are active. Digitalis exerts a peculiar influence upon the heart and arteries, small doses reducing the frequency and in-

creasing the force of the heart's beat and rendering the pulse slower and firmer. Sometimes the earliest effect of digitalis is to render the pulse more rapid ; but this condition gives place to that just described, and indeed is seldom observed at all. Larger doses cause vomiting and diarrhœa, flashes before the eyes, irregular pulse finally giving place to a frequent and feeble one, and death. Fatal poisoning has taken place, both by accident and criminally. It should always be remembered in giving digitalis in considerable doses, that the change from the strong to the weak pulse may take place suddenly, especially on exertion. This is spoken of as the "cumulative action." It does not, however, imply any actual accumulation of the drug in the body. For therapeutic purposes the smaller doses are chiefly used, and it is conveniently spoken of as a tonic to the heart and arteries. Its most important use is in diseases of the heart, to regulate and strengthen the beat of the ventricles, and to produce a healthy degree of contractility in the arteries. The indications for its use are most frequently met with in valvular disease, but it may be of value in almost any affection where the beat is feeble and irregular and the circulation sluggish. It is not of much use in purely nervous palpitation. It is often advantageously combined with opium. Its value in reducing dropsy and producing diuresis depends upon its increasing the activity of the circulation, and perhaps the same explanation will apply to its use in headache and neuralgia.

Small doses have been recommended in fevers to act as antipyretics by equalizing the circulation, and also to strengthen the heart when, as in typhus and typhoid, its beat is weakened. It is not very efficient for the first purpose nor very safe for the second. Large doses, like any depressing poison, will produce a fall of temperature, but this remedy should not be applied until safer ones have failed, and until it is very clear that the patient is in greater danger from the fever than from the digitalis. Digitalis has been used in very large doses in delirium tremens, and this disease seems to confer a certain immunity from its effects. It should be restricted to cases where it is called for by the condition of the circulation rather than the name of the disease. In frogs digitalis is a very perfect antidote to aconite, and one case has been reported where this antagonism was apparently shown to exist in aconite poisoning in man. Digitalis is sometimes applied externally in the form of a poultice of the leaves or the tincture upon the surface of an ordinary poultice. It seems very doubtful, however, whether the good effects attributed to such an application in suppression of the urine were due to the specific action of the digitalis or simply to the impression of heat and moisture.

Dose.—One or two grains, six to twelve centigrammes (.06 to .12), twice or thrice a day.

DULCAMARA.

DULCAMARA.

[BITTER-SWEET.]

Stipites Dulcamaræ, P. G.; *Tiges de Douce-amère (de Morelle Grimpante)*, Fr.; *Bittersüss-stengel*, G.

The active principle is solanin, found also in the stems of potato, tomato, and solanum nigrum. Dulcamara possesses feeble narcotic, with some diuretic and diaphoretic properties, and a tendency in large doses to depress the heart's action. It may cause nausea, faintness, vertigo, and convulsive movements. As the decoction of a peck of the herb has been taken in one forenoon without fatal results, it cannot be regarded as a dangerous poison. The therapeutic applications do not seem to have a very intimate connection with the action just described. It has been used in chronic skin diseases, as well as in dropsy, icterus, and chronic rheumatism. Its narcotic properties are probably those which make it useful in chronic bronchitis and whooping-cough.

Dose.—In substance (not used), thirty to sixty grains, two to four grammes. A decoction made by the general rule may be given, one to two ounces, thirty to sixty grammes, three times a day until some slight cerebral effect is noticed.

ELATERIN.

ELATERIN.

Derived from the fruit of Ecbalicum Officinarum, or Squirting Cucumber—Cucumis Asininus, Cucumis Agrestis—Wild Cucumber, E.; *Concombre Sauvage (Purgatif d'Ane)*, Fr.; *Springgurke, Essels-kürbis, Spritzgurke*, G.

The elaterium heretofore officinal, is a drug of such uncertain strength that the dose is stated as from one-eighth of a grain to two grains. An active principle, permitting some accuracy in dosage, is obviously a desideratum, and for this reason elaterin is introduced. It is one of the most active known watery purgatives, producing also vomiting and depression. It is very useful in dropsy or in cerebral symptoms dependent on congestion or on uræmia. It may be given in pill, dissolved in alcohol, or in the officinal trituration.

Dose.—One-sixteenth of a grain, four milligrammes (.004), repeated every hour or two until free discharges are produced.

ELIXIR AURANTII.

ELIXIR OF ORANGE.

[Simple Elixir.]

An excipient and flavoring syrup with alcohol, designed for prescription with extracts and tinctures to cover their taste and displace the numberless non-officinal elixirs. The

Dose is to be regulated by the amount of alcohol thought desirable for the patient to take.

EMPLASTRA.

PLASTERS.

The plasters as directed by the Pharmacopœia consist, with the exception of isinglass plaster, of material to be spread upon sheepskin, chamois, leather, linen, muslin (cotton), or paper. A plaster designed for local stimulation or protection is usually spread upon leather, while for surgical purposes, where long strips are required, cotton is the best. A margin of leather, not spread, should be left around the plaster. Their removal may be facilitated by a few drops of turpentine applied at the junction of the plaster and (patient's) skin. The therapeutic action of these very popular appliances, aside from the surgical uses of adhesive plaster, depends upon a certain amount of mechanical support, protection from cold, protection from pressure or abrasion, a local astringent, stimulating, or irritant effect, and in a very few cases upon the absorption of the drug employed. The latter takes place with the plasters containing mercury, and possibly to some extent with belladonna plaster. The amount of absorption is, of course, increased if they are applied to an abraded surface.

The number of plasters retained in the Pharmacopœia is much greater than necessary.

EMPLASTRUM AMMONIACI.

AMMONIAC PLASTER.

Slightly irritant.

EMPLASTRUM AMMONIACI CUM HYDRARGYRO.

AMMONIAC PLASTER WITH MERCURY.

Prolonged application may produce the constitutional effects of mercury.

EMPLASTRUM ARNICÆ.

ARNICA PLASTER.

Mildly irritating.

EMPLASTRUM BELLADONNÆ.

BELLADONNA PLASTER.

To allay neuralgic pains and relieve inflammatory and glandular swellings. Symptoms of the constitutional action of the drug are said to be common, even when it is applied to the sound skin. Severe ones may occur if it is applied to an abraded surface, as where the plaster has once been roughly removed and reapplied.

EMPLASTRUM CAPSICI.

CAPSICUM PLASTER.

Very irritating.

EMPLASTRUM FERRI.

IRON PLASTER.

[Strengthening Plaster.]

The strength consists chiefly in the name. There is no reason to suppose that the iron is absorbed.

EMPLASTRUM GALBANI.

GALBANUM PLASTER.

Irritating.

EMPLASTRUM HYDRARGYRI.

MERCURIAL PLASTER.

A mild counter-irritant likely to produce the constitutional effects of mercury. Has been used to prevent pitting of the face in small-pox.

EMPLASTRUM ICHTHYOCOLLÆ.

ISINGLASS PLASTER.

[Court Plaster.]

The neatest surgical plaster where great strength is not required and the parts are not to be exposed to wet.

EMPLASTRUM OPII.

OPIUM PLASTER.

Probably there is no specific effect from the opium if the skin is whole, and but very little under any circumstances.

EMPLASTRUM PICIS BURGUNDICÆ.

BURGUNDY PITCH PLASTER.

Slightly irritating.

EMPLASTRUM PICIS CANADENSIS.

CANADA PITCH PLASTER.

[Hemlock Pitch Plaster.]

Slightly irritating.

EMPLASTRUM PICIS CUM CANTHARIDE.

PITCH PLASTER WITH CANTHARIDES.

[Warming Plaster.]

More irritating than a simple pitch plaster, but is not intended to blister.

EMPLASTRUM PLUMBI.

LEAD PLASTER.

[Diachylon Plaster.]

The basis of many other plasters. Is itself a good protective in bed-sores, and to prevent abrasion.

EMPLASTRUM RESINÆ.

RESIN PLASTER.

[Adhesive Plaster.]

This is the surgical adhesive plaster. It is not intended to, but sometimes does, produce some irritation.

EMPLASTRUM SAPONIS.

SOAP PLASTER.

A good protective, but more likely to slip than lead plaster.

ERGOTA.

ERGOT.

[Ergot of Rye.]

Secale Cornutum, P. G. ; *Secale Clavatum, Mater Secalis—Spurred Rye*, E. ; *Ergot, Seigle Ergoté, Blé Cornu*, Fr. ; *Mutterkorn, Kornmutter, Zapfenkorn*, G.

The active principle of ergot is not known. It is, however, known that it is volatile and easily decomposed, so that ergot should be fresh and its preparations made without heat. They are wisely few in number. The so-called ergotins are merely extracts. Ergot is principally known for its power of producing uterine contractions. This happens most easily when the uterine contents are ready to be expelled, as in normal labor, or have been otherwise disturbed, as in abortion, or when they are of abnormal character, as clots or a fibroid tumor. Contractions should take place in from fifteen to thirty minutes after the dose, the effect of which may last for two or three hours. It contracts the arterioles as well as the uterus, lowering the pulse, increasing the vascular tension, and often causing headache. The long-continued use of ergoted grain has given rise to epidemics of ergotism, spoken of as gangrenous and spasmodic. This is not observed, however, even after long-continued medicinal use, and the influence of cold and hunger as well as of ergot is apparently necessary to produce it. Ergot is often used in obstetrics to promote the expulsion of the child, but this procedure is not approved of under ordinary circumstances by the best practitioners. It is of more value after labor to produce full contraction of the uterus, the expulsion of clots, and the checking of hemorrhage. In medicine it is employed to expel abnormal uterine contents, as clots or a partially dislodged fibroid, to cause contraction of its substance, as in subinvolution, and to check the growth of fibroids inaccessible to surgical interference.

Its power of contracting the arterioles makes it one of the most efficient hemostatics, as in hemoptysis, hematuria, and purpura. It is also used in cerebral and spinal diseases, congestion, and inflammation, to contract the blood-vessels. It may be administered as an extemporaneous infusion, or a wine or fluid extract, or if the solid form is desired the unofficinal so-called ergotin may be used. For subcutaneous use ergotin dissolved in glycerin and water or a solution of an aqueous extract, the fluid extract, or the latter evaporated to dryness without much heat and redissolved in water, are employed. There is apt to be irritation or even abscess at the point of injection, if a solution with alcohol be used, the risk of which may be diminished by inserting the needle more deeply into the

muscles than is usually done. The obstetric practitioner should carry with him either the powder or the whole ergot, in small well-stopped bottles, or a fluid extract of known reputation, frequently renewed.

Dose.—In substance or for immediate infusion, eight to thirty grains, one-half to two grammes, repeated in twenty minutes in case of need. Of ergotin, one to three grains, six to eighteen centigrammes (06. to .18). These doses may also be used once in two or three hours when it is desired to continue the action of the drug. The fluid extract is one of the most convenient and efficient preparations.

ERYTHROXYLON.

ERYTHROXYLON.

[Coca, or Cuca.]

Feuilles de Coca, Fr.; *Cocablätter*, G.

This drug contains the alkaloids cocaina and hygrina, and a volatile constituent which gives a pleasant fragrance to the fresh leaves. The difference in specimens of coca is very great, and many leaves are undoubtedly sold which have but a trace remaining of their original properties. This probably accounts for the great discrepancy in the statements of persons who have experimented with this drug here and in Europe. Good coca exerts a decided influence upon the nervous system, somewhat akin to that of coffee. It has long been reported that the South American Indians are able to support long-continued and severe labor on a minimum of food provided they have a supply of coca leaves, which they chew with the addition of a little alkaline powder. It may fairly be stated that, notwithstanding some failures, similar effects have been obtained here and in Europe. Although it is a very valuable stimulant for persons undergoing unusual bodily or mental fatigue, its strictly therapeutic value must be considered slight. Symptoms showing a resemblance between coca and cannabis indica have been described, but certainly very considerable doses fail to produce more than a slight feeling of oppression in the head, wakefulness, and perhaps some quickening of the pulse. A long-continued use seems to produce something like the mental condition observed after many neurotic drugs. Coca may be used as a general tonic, and has been especially tried in mental diseases of a depressive type, but without decided success.

Dose.—Half an ounce or an ounce, fifteen to thirty grammes, of the leaves may be gradually eaten or made into an infusion to be taken in several doses.

EUCALYPTUS.

EUCALYPTUS.

Feuilles d'Eucalyptus, Fr.; *Eucalyptus-blätter*, G.

The leaves of this tree contain resins and a volatile oil, the latter of which is the active principle. It has a pungent, aromatic odor and taste, and is antiseptic. Doses of twenty drops cause some "general stimulation;" that is, mental excitement, desire to keep moving, and increased appetite. In larger doses there is some muscular debility. The therapeutic uses are few. Eucalyptus was at one time spoken of as a valuable substitute for quinia in the treatment of intermittent fever, but this claim is now almost universally rejected. The oil has been used, by inhalation or dropped on a lump of sugar, in gangrene of the lung and bronchitis. Smoking the leaves or burning them in the sick-room is said to relieve asthmatic paroxysm depending on cardiac disease. The tincture, as well as the leaves themselves, has been used as a local application for hemorrhages, mucous discharges, and ulcers. Some of the preparations can be employed to cover the taste of other drugs, as quinia and cod-liver oil. The tree, which is of very rapid growth, is reported from many sources to have been of great benefit in improving the climate of malarial regions.

Dose.—In substance, five grains, thirty centigrammes (.30), and upward, but not used on account of bulk; the oil, two to five drops; the tincture, fifteen minims, one gramme.

EUONYMUS.

EUONYMUS.

[Wahoo.]

Cortex Euonymi—Spindle Tree, Burning Bush, E.; *Ecorce de Fusain*, ou *de Bonnet de Prêtre*, Fr.; *Spindelbaumrinde*, G.

Contains a neutral bitter principle called euonymin; not the same as the euonymine of the eclectics, made by precipitating a strong tincture with water, but probably included in it. Euonymus is a hydragogue cathartic, and diuretic. Its ancient clinical reputation of cholagogue has been confirmed by recent experiments.

Dose.—In decoction or infusion, from one to two ounces, thirty to sixty grammes; euonymin (resinoid), from two to five grains, thirteen to thirty-two centigrammes (.13 to .32) as a cholagogue cathartic.

EUPATORIUM.

EUPATORIUM.

[THOROUGHWORT.]

Boneset, Indian Sage, E.; *Herbe à Fievre, Herbe d'Eupatoire Perfoliée, Herbe Parfaite*, Fr.; *Durchwachsener Wasserhanf*, G.

Contains a volatile oil and a bitter principle. Small doses, one to two ounces of infusion, thirty to sixty grammes, may be used as a tonic; larger ones, four to five ounces, one hundred and twenty to one hundred and fifty grammes, taken warm, produce diaphoresis and perhaps catharsis; still larger ones, half a litre, a pint, emesis.

Dose.—In powder, fifteen or thirty grains, one or two grammes (not used). Infusion as above.

EXTRACTA.

EXTRACTS.

EXTRACTA FLUIDA.

FLUID EXTRACTS.

These preparations are intended to represent, the one class in the solid form, the other in the liquid, the drugs from which they are prepared deprived of a large amount of inert material, thus enabling them to be dispensed in a smaller bulk. As, however, different parcels of a drug are likely to vary in composition, so must also these extracts, and while in the great majority of cases these variations are not enough to be of practical importance, yet with some of the more active drugs the dose is made very uncertain thereby, the only safe way of administration being to begin with a quantity which will not be an overdose, supposing the extract to have its maximum strength, and then proceed gradually upward until the effective dose is reached. Some of the solid extracts are notoriously uncertain and feeble, and it is better, whenever the full action of the drug is desired and a pure active principle is obtainable, to use the latter in preference.

The fluid extracts are directed to be made with diluted alcohol, and hence contain about one-half the alcoholic strength of the tinctures. According to the general plan, diluted alcohol is used as the menstruum and the percolation is allowed to be continued for forty-eight hours. In some cases the residue from the first percolate is heated in a steam bath to drive off the alcohol, and then diluted alcohol and the eighty per cent. of reserved percolate is added to make up the volume. One hundred grammes

of the drug is used with which to obtain one hundred cubic centimeters of the final product; hence we have a strength of one cubic centimeter to each gramme of the drug, or nearly one grain for each minim. The fluid extracts have been carefully experimented upon and are intended to be stable products, though in some cases a vegetable deposit will form after prolonged standing. This deposit usually consists of glucose and saccharine crystalline material. In some instances glycerin is directed to be added to the alcohol before percolation has commenced. The question of stability of the final products and a fair representation of the therapeutical value of each drug is yet a matter to be determined by practical experience. It is proper to say that the fluid extracts, as made according to the processes described in the Pharmacopœia of 1870, have not met with general favor, either from the medical or pharmaceutical professions.

Incompatibles: iron preparations, emulsions, strong mineral acids, lead, silver, and probably many of the vegetable alkaloids, from the fact of the large amount of tannin present in solution in the extracts.

EXTRACTUM ACONITI.

EXTRACT OF ACONITE.

It should be remembered that the extract of aconite of the last edition was made from the leaves. This is from the root.

Dose.—One-sixth to one-third of a grain, one to two centigrammes (.01 to .02), increased. The French and German Pharmacopœias use an extract from the leaves.

EXTRACTUM ACONITI FLUIDUM.

FLUID EXTRACT OF ACONITE.

Dose.—One-half to two minims, three to twelve centigrammes (.03 to .12), three or four times a day. In febrile affections smaller doses, one-sixth to one-fourth of a drop, may be given every thirty to sixty minutes.

EXTRACTUM ALOES AQUOSUM.

AQUEOUS EXTRACT OF ALOES.

Its stability is somewhat doubtful, and the dose is about the same as that of aloes.

Dose.—One-half grain, three centigrammes (.03), three times a day as laxative; as cathartic, two to six grains, twelve to thirty centigrammes (.12 to .30).

EXTRACTUM ARNICÆ RADICIS.

EXTRACT OF ARNICA ROOT.

Seldom if ever used internally. This preparation is less irritating than that made from the flowers, as directed in the last edition.

Dose.—Stated at five to ten grains, thirty to sixty centigrammes (.30 to .60).

EXTRACTUM ARNICÆ RADICIS FLUIDUM.

FLUID EXTRACT OF ARNICA ROOT.

Dose.—Ten to thirty minims, thirty centigrammes to two grammes (.30 to 2).

EXTRACTUM AROMATICUM FLUIDUM.

AROMATIC FLUID EXTRACT.

May be used in diarrhœa or colic, or as a vehicle.

Dose.—Fifteen minims and upward, one gramme.

EXTRACTUM AURANTII AMARI FLUIDUM.

FLUID EXTRACT OF BITTER ORANGE PEEL.

Slightly bitter and tonic. Used as flavoring, especially for the mineral acids. Nitrohydrochloric acid, however, dissipates the orange flavor.

Dose.—One-half to one fluidrachm, two to four grammes or cubic centimeters.

EXTRACTUM BELLADONNÆ ALCOHOLICUM.

ALCOHOLIC EXTRACT OF BELLADONNA.

Of very uncertain strength. Softened with water, glycerin or oil it may be used as an external application.

Dose.—One-fourth grain, fifteen milligrammes (.015), in pill, increased until an effect is produced on the throat or on the pupil.

EXTRACTUM BELLADONNÆ FLUIDUM.

FLUID EXTRACT OF BELLADONNA.

Dose.—One to two minims, six to twelve centigrammes (.06 to .12), increased.

EXTRACTUM BRAYERÆ FLUIDUM.

FLUID EXTRACT OF BRAYERA.

More convenient, but perhaps less efficacious than a freshly prepared infusion or decoction.

Dose.—Two drachms to two teaspoonfuls, eight to ten grammes.

EXTRACTUM BUCHU FLUIDUM.

FLUID EXTRACT OF BUCHU.

Dose.—Twenty to forty-five minims, one and a half to three grammes or cubic centimeters.

EXTRACTUM CALAMI FLUIDUM.

FLUID EXTRACT OF CALAMUS.

A stomachic, stimulant and flavoring.

Dose.—Fifteen to sixty minims, one to four grammes.

EXTRACTUM CALUMBÆ FLUIDUM.

FLUID EXTRACT OF CALUMBA.

A bitter tonic.

Dose.—Eight to thirty minims, one-half gramme to two grammes.

EXTRACTUM CANNABIS INDICÆ.

EXTRACT OF INDIAN CANNABIS.

This is the preparation usually employed to obtain the effects of cannabis. Unfortunately it is of very variable strength, and a minimum dose should be used to begin with.

Dose.—One-third grain, two centigrammes (.02), increased.

EXTRACTUM CANNABIS INDICÆ FLUIDUM.

FLUID EXTRACT OF INDIAN CANNABIS.

This is a new preparation, and as the cannabis has not often been used in substance, and there is no fixed ratio by which to compare this to the solid extract, which is itself uncertain, the exact dosage must be established by experiment.

A safe commencing **dose** would probably be from five to ten minims, thirty to sixty centigrammes (.30 to .60).

EXTRACTUM CAPSICI FLUIDUM.

FLUID EXTRACT OF CAPSICUM.

Dose.—Two to ten minims, twelve to sixty centigrammes (.12 to .60).

EXTRACTUM CASTANEÆ FLUIDUM.

FLUID EXTRACT OF CASTANEA.

Intended to take the place of the domestic infusion in the treatment of whooping-cough.

Dose.—One-half to one fluidrachm, two to four grammes. Great accuracy in dosage is not required.

EXTRACTUM CHIMAPHILÆ FLUIDUM.

FLUID EXTRACT OF CHIMAPHILA

Astringent, bitter, diuretic. For most purposes a decoction or infusion is probably better than this preparation, which if used should be largely diluted.

Dose.—One fluidrachm, four grammes.

EXTRACTUM CHIRATÆ FLUIDUM.

FLUID EXTRACT OF CHIRATA.

A bitter tonic.

Dose.—Fifteen to thirty minims, one to two grammes.

EXTRACTUM CIMICIFUGÆ FLUIDUM.

FLUID EXTRACT OF CIMICIFUGA.

Dose.—Thirty to sixty minims, two to four grammes.

EXTRACTUM CINCHONÆ.

EXTRACT OF CINCHONA.

Contains all the active principles of cinchona. It is doubtful whether it possesses any advantages over the alkaloids.

Dose.—Eight to fifteen grains, one-half to one gramme. The dose will be limited chiefly by the bulk of the preparation.

EXTRACTUM CINCHONÆ FLUIDUM.

FLUID EXTRACT OF CINCHONA.

Contains all the active principles of the bark. Used chiefly for the tonic effects of the bark or where only small doses of the alkaloids are desired. As an antiperiodic it could be used in case of emergency, but the dose would be inconveniently large.

Dose.—As a tonic, one fluidrachm, four grammes.

EXTRACTUM COLCHICI RADICIS.

ACETIC EXTRACT OF COLCHICUM.

For prescription in pills. May be combined with a cathartic.

Dose.—One-half grain to two grains, three to twelve centigrammes (.03 to .12).

EXTRACTUM COLCHICI RADICIS FLUIDUM.

FLUID EXTRACT OF COLCHICUM ROOT.

Dose.—Two to five minims, twelve to sixty centigrammes (.12 to .60).

EXTRACTUM COLCHICI SEMINIS FLUIDUM.

FLUID EXTRACT OF COLCHICUM SEED.

Dose.—Two to ten minims, twelve to thirty centigrammes (.12 to .30).

EXTRACTUM COLOCYNTHIDIS.

EXTRACT OF COLOCYNTH.

Seldom, if ever, used alone. The

Dose would be from one-half to one grain, three to six centigrammes (.03 to .06), as a laxative ; twice or three times as much for a purgative.

EXTRACTUM COLOCYNTHIDIS COMPOSITUM.

COMPOUND EXTRACT OF COLOCYNTH.

Varies very slightly in the proportion of its constituents from that of the former edition, but not enough to affect the dose. Much used as an active cathartic, often combined with others.

Dose.—Five to twenty grains, thirty to one hundred and twenty centigrammes (.30 to 1.20).

EXTRACTUM CONII ALCOHOLICUM.

ALCOHOLIC EXTRACT OF CONIUM.

Probably more active than that of the last edition, which was made of the leaves and was extremely likely to be inert.

Dose.—Two grains, twelve centigrammes (.12), will probably be perfectly safe to begin with, and should be increased until physiological effects are manifest.

EXTRACTUM CONII FLUIDUM.

FLUID EXTRACT OF CONIUM.

Dose.—Fifteen minims, one gramme, as the first dose to an adult, which may be repeated in three hours with the addition of five minims if, as will probably happen, there are no effects from the first.

EXTRACTUM CORNUS FLUIDUM.

FLUID EXTRACT OF CORNUS.

A bitter.

Dose.—One fluidrachm, four grammes.

EXTRACTUM CUBEBÆ FLUIDUM.

FLUID EXTRACT OF CUBEB.

Contains the cubebic acid, which is the most important therapeutic ingredient of cubeb, but a considerable portion of the volatile oil must be lost. It is used in the same way as cubeb, but is probably less active in the same dose than the drug in substance or than the oleoresin.

Dose.—Eight to thirty minims, one-half to two grammes (.5 to 2).

EXTRACTUM CYPRIPEDII FLUIDUM.

FLUID EXTRACT OF CYPRIPEDIUM.

May be used as a nervine or inferior substitute for valerian.

Dose.—Fifteen minims, one gramme (1).

EXTRACTUM DIGITALIS.

EXTRACT OF DIGITALIS.

A somewhat unnecessary preparation, as the efficient dose of digitalis in substance is not inconveniently large and is more trustworthy than its

extract. The non-officinal digitalin is in fact a sort of concentrated extract.

Dose.—One-fourth to one-third grain, one and a half to two centigrammes (.015 to .02).

EXTRACTUM DIGITALIS FLUIDUM.

FLUID EXTRACT OF DIGITALIS.

Less used than the tincture or infusion.

Dose.—One or two minims or drops, six to twelve centigrammes (.06 to .12).

EXTRACTUM DULCAMARÆ FLUIDUM.

FLUID EXTRACT OF DULCAMARA.

Dose.—One fluidrachm, four grammes, diluted.

EXTRACTUM ERGOTÆ.

EXTRACT OF ERGOT.

This extract may be considered to correspond to the ergotin of Bonjean. It is useful if it becomes necessary to administer ergot in a solid form ; or its aqueous solution may be used for subcutaneous injection.

Dose.—Three to twelve grains, twenty to eighty centigrammes (.20 to .80), in pills, which should be freshly made.

EXTRACTUM ERGOTÆ FLUIDUM.

FLUID EXTRACT OF ERGOT.

Is the most trustworthy preparation, except an extempore infusion of freshly powdered ergot ; but should not be used subcutaneously.

Dose.—Thirty to sixty minims, two to four grammes.

EXTRACTUM ERYTHROXYLI FLUIDUM.

FLUID EXTRACT OF ERYTHROXYLON.

If made from leaves of good quality is quite as likely to preserve the effects as the leaves themselves, which change by keeping.

Dose.—One to four fluidrachms, four to sixteen grammes.

EXTRACTUM EUCALYPTI FLUIDUM.

FLUID EXTRACT OF EUCALYPTUS.

Dose.—Five to fifteen minims, thirty centigrammes to one gramme (.30 to 1), on sugar or in capsule.

EXTRACTUM EUONYMI.

EXTRACT OF EUONYMUS.

Intended to enable the physician to administer the active principles of euonymus in a solid form and with less bulk than the bark itself. As it is a new preparation, some experience is necessary before fixing with precision the

Dose, which may be considered provisionally as from two to five grains, thirteen to thirty-two centigrammes (.13 to .32).

EXTRACTUM EUPATORII FLUIDUM.

FLUID EXTRACT OF EUPATORIUM.

Dose.—Fifteen to thirty minims, one to two grammes or cubic centimeters.

EXTRACTUM FRANGULÆ FLUIDUM.

FLUID EXTRACT OF FRANGULA.

A useful laxative. May be made more agreeable by prescription with an equal quantity of elixir aurantii or other aromatic.

Dose.—Half a teaspoonful to a teaspoonful, two to five grammes, repeated if necessary.

EXTRACTUM GELSEMII FLUIDUM.

FLUID EXTRACT OF GELSEMIUM.

Used in neuralgia, especially facial. Death has taken place in man from a tablespoonful, and in another case from two teaspoonfuls; in a woman from three teaspoonfuls. A drachm has caused very serious symptoms.

Dose.—Five to twenty minims, thirty to one hundred and twenty centigrammes (.30 to 1.20), cautiously repeated until the earlier physiological effects are manifest.

EXTRACTUM GENTIANÆ.

EXTRACT OF GENTIAN.

The effect of any amount which can be given in an ordinary pill is simply that of a bitter tonic, and the dose is unimportant.

EXTRACTUM GENTIANÆ FLUIDUM.

FLUID EXTRACT OF GENTIAN.

A bitter tonic.

Dose.—Eight to thirty minims, half a gramme to two grammes.

EXTRACTUM GERANII FLUIDUM.

FLUID EXTRACT OF GERANIUM.

A mild astringent.

Dose.—One-half a fluidrachm to one fluidrachm, two to four cubic centimeters.

EXTRACTUM GLYCYRRHIZÆ.

EXTRACT OF GLYCYRRHIZÆ.

[Extract of Liquorice.]

This is a useful demulcent, used to allay cough. It is also used as an excipient in pills and troches. The commercial extract has a certain amount of acrid taste, which is not so marked in the "purified extract."

Dose.—Indefinite.

EXTRACTUM GLYCYRRHIZÆ FLUIDUM.

FLUID EXTRACT OF GLYCYRRHIZÆ.

This is an excellent preparation for covering the taste of bitter, acrid, and saline medicines.

Dose.—Indefinite.

EXTRACTUM GLYCYRRHIZÆ PURUM.

PURE EXTRACT OF GLYCYRRHIZÆ.

Its uses and dose are the same as those of the commercial extract, but it is a little more acceptable to a sensitive palate.

EXTRACTUM GOSSYPII RADICIS FLUIDUM.

FLUID EXTRACT OF COTTON ROOT.

Dose.—Thirty minims to three drachms, two to twelve cubic centimeters.

EXTRACTUM GRINDELIÆ FLUIDUM.

FLUID EXTRACT OF GRINDELIA.

The **Dose** internally for the relief of asthma is from fifteen minims to a fluidrachm, one to four cubic centimeters. Externally, as an application in eczema and ivy-poisoning, it may be diluted ten times.

EXTRACTUM GUARANÆ FLUIDUM.

FLUID EXTRACT OF GUARANA.

This is an astringent, but owes its efficacy in the relief of headache to the caffeine it contains.

The **Dose** is from fifteen minims to a fluidrachm, with elixir of orange or other flavoring.

EXTRACTUM HÆMATOXYLI.

EXTRACT OF HÆMATOXYLON.

An astringent and coloring matter, used in the diarrhœa of children. Its color in the stools should not be mistaken for blood.

Dose.—Five to twenty grains, thirty-two to one hundred and thirty centigrammes (.32 to 1.30).

EXTRACTUM HAMAMELIDIS FLUIDUM.

FLUID EXTRACT OF HAMAMELIS.

The uses of this preparation are those of the drug itself. It is astringent, and has also been used in febrile affections, congestions, and hemorrhages.

Dose.—Fifteen minims to two drachms, one to eight cubic centimeters.

EXTRACTUM HYDRASTIS FLUIDUM.

FLUID EXTRACT OF HYDRASTIS.

A bitter.

Dose.—One fluidrachm, four grammes, two or three times a day, before meals.

EXTRACTUM HYOSCYAMI ALCOHOLICUM.

ALCOHOLIC EXTRACT OF HYOSCYAMUS.

A very untrustworthy preparation. It is often used as a supposed corrigent in pills, but is probably absolutely without value in this way. As, however, it is possible that an active preparation may by accident be obtained, it is safer to begin with a

Dose of two grains, twelve centigrammes, to be rapidly increased.

EXTRACTUM HYOSCYAMI FLUIDUM.

FLUID EXTRACT OF HYOSCYAMUS.

Much more efficient than the solid extract.

Dose.—Five to ten minims, thirty to sixty centigrammes (.30 to .60).

EXTRACTUM IPECACUANHÆ FLUIDUM.

FLUID EXTRACT OF IPECAC.

Used in small doses in cough mixture, but not a very important preparation.

Dose.—Emetic, twenty-five to thirty minims, one to two grammes; expectorant, five minims, thirty centigrammes.

EXTRACTUM IRIDIS.

EXTRACT OF IRIS.

Cholagogue.

Dose.—Two to four grains, twelve to twenty-four centigrammes (.12 to .24), in pill.

EXTRACTUM JUGLANDIS.

EXTRACT OF JUGLANS.

A mild cathartic of inconvenient bulk for pills.

Dose.—Twenty to thirty grains, one hundred and thirty centigrammes to two grammes (1.30 to 2).

EXTRACTUM KRAMERIÆ.

EXTRACT OF KRAMERIA.

Extractum Ratanhæ, P. G.; *Extrait de Ratanhia*, Fr.; *Ratanha-Extrakt*, G.

An astringent in large doses, a bitter tonic in small doses.

Dose.—Five to twenty-grains, thirty-two centigrammes to one and one-third gramme (.32 to 1.30). For enema in ulcerated or fissured rectum, a thee or four per cent. solution.

EXTRACTUM KRAMERIÆ FLUIDUM.

FLUID EXTRACT OF KRAMERIA.

Dose.—Eight to sixty minims, one-half to four cubic centimeters.

EXTRACTUM LACTUCARII FLUIDUM.

FLUID EXTRACT OF LACTICARIUM.

A feeble hypnotic. Used more generally as a placebo.

Dose.—Three to sixty minims, two-tenths to four cubic centimeters (.20 to 4).

EXTRACTUM LEPTANDRÆ.

EXTRACT OF LEPTANDRA.

A new preparation. An irritant cathartic in large doses. This extract would probably be of no greater strength than the impure resin leptandrin.

Dose.—Two to four grains, thirteen to twenty-six centigrammes (.13 to .26).

EXTRACTUM LEPTANDRÆ FLUIDUM.

FLUID EXTRACT OF LEPTANDRA.

Dose.—Thirty to sixty minims, two to six grammes.

EXTRACTUM LOBELIÆ FLUIDUM.

FLUID EXTRACT OF LOBELIA.

Emetic, expectorant and cardiac depressant. Continued use increases the depressing action on the heart.

Dose.—As an emetic, five to twenty grains, thirty to one hundred and thirty centigrammes (.30 to 1.30); as an expectorant, one to five grains, six to thirty centigrammes (.06 to .30).

EXTRACTUM LUPULINÆ FLUIDUM.

FLUID EXTRACT OF LUPULIN.

A stomachic tonic and feeble hypnotic.

Dose.—Ten to thirty minims, sixty to one hundred and twenty centigrammes (.60 to 1.20). The extract should be mixed with a little brandy and dropped in water, as, if the water is poured upon the extract, the precipitate formed adheres closely to the sides of the glass.

EXTRACTUM MALTI.

EXTRACT OF MALT.

Malt extract either in its thick liquid condition, which is officinal, or in granulated form (as known in Mellin's or Horlick's food), has not only nutrient properties on account of its glucose, but also on account of its containing diastase acts as a digestive ferment. Its admixture to milk and oleaginous foods assists their digestion and assimilation, and tends to relieve constipation. No especial dose need be prescribed, though any larger than a tablespoonful is apt to relax the bowels. It forms a convenient and palatable addition to ferruginous and bark preparations, one-third of the bulk of which may be prescribed to form a syrupy mixture.

EXTRACTUM MATICO FLUIDUM.

FLUID EXTRACT OF MATICO.

This extract may be used as a hemostatic, and also as an alterative or stimulant in chronic affections of the urinary passages.

Dose.—One-half to two or three fluidrachms, two to twelve cubic centimeters.

EXTRACTUM MEZEREI.

EXTRACT OF MEZEREUM.

Used to prepare compound mustard liniment.

EXTRACTUM MEZEREI FLUIDUM.

FLUID EXTRACT OF MEZEREUM.

Used chiefly externally as a counter-irritant and blistering substance. Its internal use is violently irritating to the stomach.

Dose.—One to ten minims, six to sixty centigrammes (.06 to .60).

EXTRACTUM NUCIS VOMICÆ.

EXTRACT OF NUX VOMICA.

A stimulant to nerve-centres, and especially to the unstriped muscular fibres of the intestinal tract. Often used in combination in laxative pills for habitual constipation.

Dose.—One-third to one grain, two to six centigrammes (.02 to .06).

EXTRACTUM NUCIS VOMICÆ FLUIDUM.

FLUID EXTRACT OF NUX VOMICA.

The extract is of uncertain strength, but a safe dose is from one to five minims, six to thirty centigrammes (.06 to .30), given in malt extract or water, in debilitated conditions of the large bowel.

EXTRACTUM OPII.

EXTRACT OF OPIUM.

Dose.—One-fourth to a grain, sixteen milligrammes to six centigrammes (.016 to .06) ; about half that of opium.

EXTRACTUM PAREIRÆ FLUIDUM.

FLUID EXTRACT OF PAREIRA.

May be used in chronic inflammations of the urinary passages.

Dose.—Thirty to sixty minims, two to four grammes.

EXTRACTUM PHYSOSTIGMATIS.

EXTRACT OF PHYSOSTIGMA.

Antispasmodic, the virtues depending upon its active principle eserine, or, physostigma. The dose should be regulated by watching for the physiological effects.

Dose.—One-sixteenth to one-fourth grain, four to sixteen milligrammes (.004 to .016), three times daily. For subcutaneous injection in tetanus these doses may be dissolved in water.

EXTRACTUM PILOCARPI FLUIDUM.

FLUID EXTRACT OF PILOCARPUS.

Represents the activity of jaborandi. The smaller doses mentioned will be somewhat diuretic, the larger powerfully diaphoretic and sialagogue.

Dose.—Five to sixty minims, thirty centigrammes to four grammes, frequently repeated, every half hour till the effects are manifest. The fluid extract is not so trustworthy as the alkaloid pilocarpin, or as a decoction of leaves of good quality.

EXTRACTUM PODOPHYLLI.

EXTRACT OF PODOPHYLLUM.

Probably of the same character as the so-called resinoid "podophyllin," though much less concentrated. An irritant cathartic.

Dose.—Five to fifteen grains, thirty-two centigrammes to one gramme (.32 to 1).

EXTRACTUM PODOPHYLLI FLUIDUM.

FLUID EXTRACT OF PODOPHYLLUM.

Dose.—Ten to twenty grains, sixty-four to one hundred and thirty centigrammes (.64 to 1.30).

EXTRACTUM PRUNI VIRGINIANÆ FLUIDUM.

FLUID EXTRACT OF WILD CHERRY.

Bitter tonic, and slightly sedative in its action, from the presence of a small amount of dilute hydrocyanic acid.

Dose.—Thirty to sixty minims, two to four grammes or cubic centimeters.

EXTRACTUM QUASSIÆ.

EXTRACT OF QUASSIA.

An excellent stimulant to the appetite in debilitated conditions without organic disease.

Dose.—Three to five grains, eighteen to thirty-two centigrammes (.18 to .32).

EXTRACTUM QUASSIÆ FLUIDUM.

FLUID EXTRACT OF QUASSIA.

Dose.—Thirty to sixty minims, two to four grammes or cubic centimeters.

EXTRACTUM RHEI.

EXTRACT OF RHUBARB.

Dose.—For catharsis ten grains, sixty-four centigrammes; for stomachic and astringent action in catarrhal conditions of the stomach and bowels, three to six grains, twenty to forty centigrammes.

EXTRACTUM RHEI FLUIDUM.

FLUID EXTRACT OF RHUBARB.

Dose.—As a stomachic tonic, one to five grains, six to thirty centigrammes; as laxative, five to ten grains, thirty to sixty centigrammes after food; as purgative, ten to forty grains, sixty centigrammes to two and a half grammes.

EXTRACTUM RHOIS GLABRÆ FLUIDUM.

FLUID EXTRACT OF RHUS GLABRA.

An acid and astringent wash for aphthæ of mouth or catarrhal pharyngitis, also for dressing of wounds and ulcers. For internal use in catarrhal affections of stomach and bowels.

Dose.—One to two drachms, four to eight cubic centimeters.

EXTRACTUM ROSÆ FLUIDUM.

FLUID EXTRACT OF ROSE.

Used in preparations only, or in sore mouth as a wash.

EXTRACTUM RUBI FLUIDUM.

FLUID EXTRACT OF RUBUS.

A valuable astringent in summer diarrhœa.

Dose.—Thirty to sixty grains, two to four cubic centimeters.

EXTRACTUM RUMICIS FLUIDUM.

FLUID EXTRACT OF RUMEX.

Astringent, laxative, and reputed "alterative," not unlike rhubarb or sarsaparilla. Sometimes used externally as a feeble astringent in atonic skin diseases.

Dose.—Thirty to sixty minims, two to four cubic centimeters.

EXTRACTUM SABINÆ FLUIDUM.

FLUID EXTRACT OF SAVINE.

Contains the volatile oil, resin, and tannic acid of the drug. An emmenagogue and vermifuge, but in large doses its irritating effects are dangerous to life, especially in feeble patients.

Dose.—Five to fifteen minims, thirty-two centigrammes to one gramme (.32 to 1).

EXTRACTUM SANGUINARIÆ FLUIDUM.

FLUID EXTRACT OF SANGUINARIA.

An expectorant, rarely used alone. Large doses cause emesis and constitutional depression. A stomachic stimulant.

Dose.—One to five minims, six to thirty centigrammes (.06 to .30), as expectorant and stimulant; as emetic, ten to sixty minims, sixty-four to one hundred and thirty centigrammes (.64 to 1.30), used cautiously.

EXTRACTUM SARSAPARILLÆ COMPOSITUM FLUIDUM.

COMPOUND FLUID EXTRACT OF SARSAPARILLA.

A convenient vehicle in which to prescribe mercury or iodide of potassium in syphilis, or as an adjuvant to medicines used in atonic conditions of the digestive tract.

Dose.—Thirty to sixty minims, two to four cubic centimet
should be noted that three per cent. of the mixed powder is m

EXTRACTUM SARSAPARILLÆ FLUIDUM.

FLUID EXTRACT OF SARSAPARILLA.

A stomachic tonic.

Dose.—Thirty to sixty minims, two to four cubic centimeters.

EXTRACTUM SCILLÆ FLUIDUM.

FLUID EXTRACT OF SQUILL.

Expectorant and diuretic ; generally used in combination.

Dose.—One to two minims, six to thirteen centigrammes (.06 to .13).

EXTRACTUM SCUTELLARIÆ FLUIDUM.

FLUID EXTRACT OF SCUTELLARIA.

A feeble sedative nervine.

Dose.—One to two drachms, four to eight cubic centimeters.

EXTRACTUM SENEGÆ FLUIDUM.

FLUID EXTRACT OF SENEGA.

Contains saponin ; expectorant and feeble diuretic. In large doses it provokes emesis and catharsis. It is a feeble emmenagogue in passive congestions of the organs of generation.

Dose.—Eight to twenty minims, one-half to one and one-third gramme (.5 to 1.30).

EXTRACTUM SENNÆ FLUIDUM.

FLUID EXTRACT OF SENNA.

An efficient laxative, though it often induces griping pain and nausea, especially in large doses. It is not usually prescribed alone, but in combination with aromatic and carminative drugs, or salines.

Dose.—As laxative, one drachm, four cubic centimeters ; as a cathartic, two or more drachms, eight cubic centimeters and upward.

EXTRACTUM SERPENTARIÆ FLUIDUM.

FLUID EXTRACT OF SERPENTARIA.

As the use of this drug is generally indicated in feeble conditions where cinchona and alcohol are beneficial, the compound tincture of cinchona

(Huxham's), which contains serpentaria, is usually prescribed. The fluid extract may also be used in fevers (typhoidal), in depression with feeble pulse, in combination with carbonate of ammonia.

Dose.—Ten to thirty minims, sixty-four centigrammes to two grammes (.64 to 2).

EXTRACTUM SPIGELIÆ FLUIDUM.

FLUID EXTRACT OF SPIGELIA.

Used in combination with other drugs, senna, for instance, as a vermifuge for lumbricoid ascarides, which it narcotizes rather than destroys. The formerly officinal fluid extract of spigelia and senna was made by the addition of six ounces of fluid extract of senna to ten of fluid extract of spigelia, with a little anise and caraway.

Dose.—Ten to twenty minims, sixty-four to one hundred and thirty centigrammes, for children, and one to two fluidrachms, four to eight cubic centimeters, for adults.

EXTRACTUM STILLINGIÆ FLUIDUM.

FLUID EXTRACT OF STILLINGIA.

Used sometimes as an alterative, but its medicinal virtues are not well established.

Dose.—Fifteen to thirty minims, one to two grammes.

EXTRACTUM STRAMONII.

EXTRACT OF STRAMONIUM.

Antispasmodic and mydriatic, of especial value in bronchitic or hay asthma, and a local application, apparently acting as an anodyne. Like all extracts, somewhat uncertain. The dose should be at first small enough to be safe, and gradually increased.

Dose.—One-half a grain, three centigrammes (.03), to begin with.

EXTRACTUM STRAMONII FLUIDUM.

FLUID EXTRACT OF STRAMONIUM.

Dose.—One minim, six centigrammes, cautiously increased.

EXTRACTUM TARAXACI.

EXTRACT OF TARAXACUM.

Stomachic tonic, mild laxative, and feeble cholagogue. Often used as a vehicle for more active drugs in pill.

Dose.—Thirty to sixty grains, two to four grammes, dissolved in water. In pill the dose is limited by the inconvenient size.

EXTRACTUM TARAXACI FLUIDUM.

FLUID EXTRACT OF TARAXACUM.

Dose.—Thirty minims to two fluidrachms or more, two to eight grammes or cubic centimeters.

EXTRACTUM TRITICI FLUIDUM.

FLUID EXTRACT OF TRITICUM.

A feeble diuretic and emollient drink in febrile conditions; a more popular remedy in France than in this country. Used in disorders of the bladder and urinary passages. It is doubtful if this preparation advantageously replaces the infusion.

Dose.—One fluidrachm to a fluid ounce, four to thirty cubic centimeters, considerably diluted.

EXTRACTUM UVÆ URSI FLUIDUM.

FLUID EXTRACT OF UVA URSI.

Astringent, tonic, and diuretic, sometimes used as an emmenagogue and in disorders of the urinary passages.

Dose.—Thirty to sixty minims, two to four cubic centimeters, largely diluted.

EXTRACTUM VALERIANÆ FLUIDUM.

FLUID EXTRACT OF VALERIAN.

Used as a soothing remedy in hysteria. A so-called antispasmodic.

Dose.—Fifteen to thirty minims, one to two cubic centimeters.

EXTRACTUM VERATRI VIRIDIS FLUIDUM.

FLUID EXTRACT OF VERATRUM VIRIDE.

Emetic and expectorant, but not used as such. It also reduces frequency of pulse and respiratory movements. Should be used cautiously, as large doses occasion constitutional depression and grave symptoms.

Dose.—One to four minims, six to twenty-six centigrammes (.06 to .26).

EXTRACTUM VIBURNI FLUIDUM.

FLUID EXTRACT OF VIBURNUM.

Viburnum has the reputation of soothing irritability of uterine muscular fibres, and is very conveniently represented in this preparation. Used especially in dysmenorrhœa and other abdominal pains.

Dose.—Thirty to sixty minims, two to four cubic centimeters.

EXTRACTUM XANTHOXYLI FLUIDUM.

FLUID EXTRACT OF XANTHOXYLUM.

A feeble stimulant and diaphoretic.

Dose.—Thirty to sixty minims, two to four cubic centimeters, repeated every three or four hours.

EXTRACTUM ZINGIBERIS FLUIDUM.

FLUID EXTRACT OF GINGER.

A stimulating irritant to the gastro-intestinal mucous membrane. Is used to relieve flatulent colic and abdominal pains.

Dose.—Ten to thirty minims, one-half to two cubic centimeters.

FEL BOVIS.

OX-GALL.

FEL BOVIS INSPISSATUM.

INSPISSATED OX-GALL.

FEL BOVIS PURIFICATUM.

PURIFIED OX-GALL.

Fel Tauri Depuratum, P. G.; *Fel Bovis Purificatum, Extractum Fellis Bovini—Purified Ox-Gall*, E.; *Fiel de Bœuf Purifie*, Fr.; *Gereinigte Ochsengalle* (*Rindsgalle*), G.

In the preparation of inspissated ox-gall nothing is removed but water and mechanical impurities; in the purified, nothing but these and a little mucus. Hence they contain cholesterine, the biliary coloring matters, and the biliary acids. A preparation freed, or nearly so, from coloring matter, is known as choleate of soda. The two latter preparations are alone used in practice.

The use of these preparations in medicine was obviously suggested by the fact of bile being normally present in the intestinal canal to assist digestion; but it should be remembered that while the normal bile is poured directly into the duodenum from the bile-duct, the medicinal preparation is obliged to find its way thither through the acid media of the stomach, where it is likely to interfere with the digestion. Possibly its administration in capsules may allow it to pass through the stomach undissolved and perform its functions in the duodenum. Bile is used in chronic constipation and its attendant dyspepsia, but it is doubtful if it possesses special advantages over other mild and bitter laxatives, notably aloes. One hundred parts of bile are represented by fifteen of the inspissated, and somewhat less of the purified. There is a dry decolorized German preparation, of which seven parts correspond to one hundred of bile.

Dose.—Eight to fifteen grains, one-half to one gramme, in capsule or coated pill.

FERRUM.

IRON.

Mars, Fer, Fr.; *Eisen*, G.

The iron wire of the Pharmacopœia is used simply to prepare the numerous ferruginous, chalybeate, or martial, salts. The iron salts used in medicine are essentially the same in their general or constitutional action, and approximately so in their local effect on the alimentary canal. Some are, however, slightly, if at all, irritant, unless in very excessive quantities, while others have quite a decided action of this kind. All the soluble preparations have an inky taste, more or less pronounced, and blacken the teeth. This blackness may be removed by the tooth-brush, and is not due to the same action as the injurious effect of some of the acid preparations.

Many undergo a change to ferrous chloride before being absorbed, the metallic preparations, the oxides, and carbonates being dissolved in the hydrochloric acid of the gastric juice, while others, like the ferric salts, undergo a partial reduction. The iodide and ferrocyanide, and perhaps others are absorbed unchanged. Of any dose of iron administered by the mouth, a considerable portion escapes absorption and colors the stools black from the formation of tannates and sulphides. The fæces of nursing children are not colored by iron. Either in the stomach before absorption, or in the blood afterward, the ferrous chloride unites with albumen to form a double albuminate of iron and sodium. Non-irritating and non-styptic preparations may be administered subcutaneously. Iron is eliminated chiefly by the glands of the intestinal canal, and especially the liver; but a small portion makes its appearance in the other secretions, as the urine, saliva, sweat, milk, and tears. Small doses of the insoluble and less irritating preparations of iron produce at first no marked symptoms, except some improvement of appetite and a tendency to constipation. If the treatment is long continued, or larger quantities, and the more irritating preparations are used, there appears, according to the susceptibility of the patient, decided gastric irritation, as shown by a furred tongue, a sensation of weight in the stomach after eating, or gastralgia and pyrosis. Constipation and headache are the more common symptoms. In health, there is usually no marked effect upon the blood, although it appears possible to produce a certain amount of plethora in some cases, but in many forms of anæmia the increase of red corpuscles and of hæmoglobin is very marked under martial medication. The iron ingested in the course of any ferruginous treatment is much in excess of the amount appropriated by the blood-corpuscles, and as the quantity of iron contained in any ordinary diet seems to be sufficient, if properly digested and absorbed, for the needs of the economy, it is held by some therapeutists that iron acts rather as a stimulant to the blood-forming function, than as a direct food to the corpuscles themselves. Whatever theory of the *modus operandi* is held, however, the fact remains that the iron preparations, if properly used, exercise a peculiar and decided effect in restoring, not only the normal proportions of the red corpuscles, but of the hæmoglobin, to the blood. Although the one therapeutic indication for the use of iron is anæmia, this symptom, as induced by different diseases, does not always yield with equal readiness to the treatment. This is in part due to the differing power of the digestive organs in appropriating the nourishment offered them, and their varied irritability, and in part probably to essential changes in the constitution of the blood in addition to mere anæmia.

It is well known that in impaired digestion and deficient interstitial nutrition accompanying certain blood diseases which produce anæmia or

a diminution of the red blood-corpuscles, for instance, the syphilitic and cancerous cachexiæ, iron will not, as a rule, repair the anæmic condition, whilst in the former disease, certainly, mercury and iodide of potassium, and in the latter, sometimes, carbonate of ammonia or potassa, will improve the anæmia.

Clinical experience shows clearly that in certain forms of anæmia without apparent organic disease, as, for instance, chlorosis, no improvement follows an injudicious use of iron, the constitutional effects of which prove so inconvenient that the treatment cannot be pursued. In these cases very minute doses of iron preparations, not theoretically best suited for direct absorption, produce beneficial results upon the anæmia; for instance, reduced iron or Quevenne's iron by hydrogen, as well as dialyzed iron solution (not officinal), may, when properly administered with food, increase the percentage of blood-corpuscles in the system, while the use of the tincture of chloride of iron or the double salt of citrate of iron and quinine in ordinary doses may increase the constitutional disturbance. It is a fair statement that the more pernicious and extreme the anæmia, the smaller should be the dose, and the less stimulating the preparations used in the commencing treatment, and that as improvement continues the size of the dose or the form of combination may be changed. So also may it be said that with a furred tongue and gastric and hepatic inaction iron is contra-indicated in large doses, while yet the relief to these symptoms and their concomitant constipation may prove an indication for its careful administration. The ordinary beneficial effect of ferruginous treatment should be an improved digestion and assimilation of food and relief to anæmia and tissue formation, as shown by improved color to the mucous membranes and increase of weight. This effect should be followed by increased muscular and mental vigor.

Iron salts are frequently combined with other tonics, both in officinal and unofficinal preparations and in extemporaneous prescriptions, as with quinia, strychnia, quassia, gentian, phosphates, hypophosphates, lime, soda, and potash, and also with cathartics, as sulphate of magnesia, Rochelle salt, aloes, rhubarb, and others. The number of iron preparations besides the officinal is immense; but they are superfluous, since the Pharmacopœia describes more than enough to fulfil all rational indications.

Besides the preparations given in the immediately succeeding pages, there will be found under the appropriate headings the following: Emplastrum Ferri, Liquor Ferri Acetatis, Liquor Ferri Chloridi, Liquor Ferri Citratis, Liquor Ferri et Quiniæ Citratis, Liquor Ferri Nitratis, Liquor Ferri Subsulphatis, Liquor Ferri Tersulphatis, Massa Ferri Carbonatis, Mistura Ferri Composita, Mistura Ferri et Ammonii Acetatis,

Pilulæ Aloes et Ferri, Pilulæ Ferri Carbonatis, Pilulæ Ferri Compositæ, Pilulæ Ferri Iodidi, Syrupus Ferri Bromidi, Syrupus Ferri Iodidi, Syrupus Ferri, Quininæ, et Strychninæ Phosphatum, Syrupus Hypophosphitum cum Ferro, Tinctura Ferri Acetatis, Tinctura Ferri Chloridi, Trochischi Ferri Subcarbonatis, Vinum Ferri Amarum, Vinum Ferri Citratis.

FERRI CARBONAS SACCHARATUS.

SACCHARATED CARBONATE OF IRON.

[Saccharated Ferrous Carbonate.]

Ferrum Carbonicum Saccharatum, P. G. ; *Carbonas Ferrosus Saccharatus—Saccharure de Proto-carbonate de Fer*, Fr. ; *Zückerhaltiges Kohlensaures Eisen*, G.

The Pharmacopœia requires that this preparation shall have at least fifteen per cent. of ferrous carbonate, while in the edition of 1870, thirty-seven per cent. was required. The German Pharmacopœia requires twenty per cent. ; the Russian, ten per cent. of ferrous carbonate. The addition of sugar is for the purpose of preventing oxidation of the ferrous carbonate. This preparation is soluble in warm dilute hydrochloric acid, with the evolution of carbonic acid gas. Its local action is not astringent, but is that of a slight stimulant to the digestive tract. It forms, therefore, a useful tonic in enfeebled digestion.

Dose.—Five to thirty grains, thirty-two centigrammes to two grammes, with food.

FERRI CHLORIDUM.

CHLORIDE OF IRON.

[Ferric Chloride.]

Ferrum Sesquichloratum, P. G. ; *Ferrum Muriaticum Oxydatum, Chloridum seu Chloruretum Ferricum, Ferri Perchloridum—Sesquichloride (Perchloride) of Iron, Ferric Chloride*, E. ; *Perchlorure de Fer, Chlorure Ferrique*, Fr. ; *Eisenchlorid*, G.

This salt is never used internally as a medicine, because its local action is very astringent. Its topical action upon a bleeding surface causes coagulation of blood, and hence its use as a hæmostatic. The local application in uterine hemorrhage, and the injection into aneurismal sacs is strongly condemned by many authorities, the former on account of danger from absorption of effete matters from decomposing clots in utero, the latter

from the danger of sending coagula into the systemic circulation. A similar risk in injection into varicose veins may be prevented by compression of the veins on each side of the varicose enlargements. Ferric chloride absorbs water from the air and deliquesces, and may thus be directly applied in full strength to the bleeding surface, or a solution of five per cent. may be used on lint, or as a wash over a bleeding surface. If used in the uterus, swabbing is better than injection, or if the latter method be employed, the clots formed should be turned out as soon as safety will permit.

FERRI CITRAS.

CITRATE OF IRON.

Ferrum Citricum Oxydatum, P. G.; *Citras Ferricus—Ferric Citrate*, E.; *Citrate de Sesquioxyde de Fer, Citrate Ferrique*, Fr.; *Citronensaures Eisenoxyd, Eisencitrat*, G.

In the edition of 1870 the citrate of iron was not formed with ammonia.

This preparation of iron is a mild stimulant, and in an aqueous solution produces little irritation, and may be administered to persons with delicate stomachs or to children. This "scale salt," however, is more commonly used in the combination of citrate of iron and quinine, or in the citrate of iron and ammonium, which latter is more readily soluble in water.

Dose.—Two to five grains, twelve to thirty-two centigrammes (.12 to .32).

FERRI ET AMMONII CITRAS.

CITRATE OF IRON AND AMMONIUM.

[Ammonio-Ferric Citrate.]

Ferri et Ammoniæ Citras, Br.; *Ferrum Citricum Ammoniatum*, P. G.; *Ferri Ammonio-Citras, Ferro-Ammonium Citricum—Ammonio-Citrate of Iron, Soluble Citrate of Iron*, E.; *Citrate de Fer et d'Ammoniaque (de Fer Ammoniacal), Citrate Ferrique Ammoniacal*, Fr.; *Citronensaures Eisenoxyd-Ammonium (Ammoniak)*, G.

Dose.—Two to five grains, twelve to thirty-two centigrammes.

FERRI ET AMMONII SULPHAS.

SULPHATE OF IRON AND AMMONIUM.

[Ammonio-Ferric Sulphate—Ammonio-Ferric Alum.]

Ferricum Sulfuricum Oxydatum Ammoniatum, P. G. ; *Ferrum Ammonio-Sulphuricum, Ferri Ammonio-Sulphas, Sulphus Ammonico-Ferricus—Ammonio-Ferric Alum*, E. ; *Sulfate de Fer et d'Ammoniaque, Sulfate de Fer (Ferrique) Ammoniacal, Alun de Fer Ammoniacal*, Fr. ; *Schwefelsaures Eisenoxyd-Ammonium, Ammoniakalischer Eisenalaun*, G.

This is the least astringent of the salts of iron formed with sulphuric acid, but is much more astringent than any of the citrates or lactates.

Dose.—Three to fifteen grains, eighteen centigrammes to one gramme.

FERRI ET AMMONII TARTRAS.

TARTRATE OF IRON AND AMMONIUM.

[Ammonio-Ferric Tartrate.]

This preparation contains an equivalent of about twenty-five per cent. of ferric oxide, and is freely soluble in water. Its irritant properties are slight.

Dose.—Five to twenty grains, thirty-two to one hundred and thirty centigrammes.

FERRI ET POTASSII TARTRAS.

TARTRATE OF IRON AND POTASSIUM.

[Potassio-Ferric Tartrate.]

Ferrum Tartaratum, Br. ; *Tartarus Ferratus*, P. G. ; *Ferri Potassio-Tartras, Ferrum Tartarizatum, Tartras Ferrico-Kalicus*, etc.—*Tartrate de Fer et de Potasse, Tartrate Ferrico-Potassique, Tartre Chalybé, Tartre Martial*, Fr. ; *Weinsaures Eisenoxyd-Kali, Eisenweinstein*, G.

This scaled preparation contains a little more ferric oxide than the preceding, and has the further advantage of being the least disagreeable in taste of all the ferruginous preparations. It does not cause constipation, from the fact that its local action is very slightly astringent. If necessary it may be well combined in prescription with the tartrate of potassium and sodium.

Dose.—Five to ten grains, thirty-two to sixty-five centigrammes.

FERRI ET QUINIÆ CITRAS.

CITRATE OF IRON AND QUININE.

Chininum Ferro-Citricum, P. G.; *Citras Ferrico-Quinicus—Citrate de Fer et de Quinine*, Fr.; *Citronensaures Eisen Chinin*, G.

In the present edition, this double salt is not formed with the addition of ammonia as in the edition of 1870, and in this respect resembles the formula of the German Pharmacopœia. Its action is not exactly that of either iron or quinine, but is astringent and stimulant to the digestive tract. In some persons, the astringent action predominates, producing constipation, while in others the stimulating properties may be so violent as to produce gastro-intestinal irritation, even to the production of nausea and diarrhœa. The Pharmacopœia also gives a formula for a solution of the above salt, but its chief advantage consists in its slow but perfect solubility, so that it is nearly tasteless when given in pill, or even powder.

Dose.—Three to five grains, eighteen to thirty centigrammes, in pill.

FERRI ET STRYCHNINÆ CITRAS.

CITRATE OF IRON AND STRYCHNINE.

Citrate de Fer et de Strychnine, Fr.; *Citronensaures Eisen-Strychnin*, G.

As this preparation contains one per cent. of strychnine, caution is required in its administration. The stimulating properties of strychnine upon the unstriped muscular fibres of the intestinal canal and upon the general nervous system are added to the astringent and stimulating properties of iron. This scaled preparation is quite soluble in water.

Dose.—One to three grains, six to eighteen centigrammes, used cautiously.

FERRI HYPOPHOSPHIS.

HYPOPHOSPHITE OF IRON.

[Ferric Hypophosphite.]

Ferri Hypophosphorosum, *Hypophosphis Ferricus—Hypophosphite de Fer*, Fr.; *Unterphosphorigsaures Eisenoxyd*, G.

This preparation is new to the United States Pharmacopœia. The value of the action of hypophosphites as an aid to nutrition is variously estimated by the medical profession. The earnest advocates for their use commend in the highest terms their usefulness in early phthisis and in

neurasthenia. The combination with iron theoretically would add value to the medicinal stimulating properties of a salt formed by hypophosphorus acid. This addition will contain all the advantages claimed of the proprietary syrups or elixirs of the hypophosphites, as it will be easy to order by prescription a proper and legitimate substitute of known strength for these preparations. If prescribed in solution, dilute hydrochloric acid may be added or a solution of citrate of sodium. It may be given in powder or pills.

Dose.—Five to ten grains, thirty-two to sixty-five centigrammes.

FERRI IODIDI SACCHARATUM.

SACCHARATED IODIDE OF IRON.

[Saccharated Ferrous Iodide.]

Ferrum Iodatum Saccharatum, G.

This is also a new preparation, being a dry form of the well-known syrup of the iodide of iron, sugar of milk being substituted for cane-sugar. The addition of sugar is for the purpose of preserving the iodide from decomposition; but it must be remembered that sunlight reduces the iodide to the condition of a subiodide. This preparation may be used in combination with quinine and elixir simplex vel aurantii, and thus prove an excellent tonic in diseases due to an arrest of interstitial nutrition, in which iodide of potassium may prove an inconvenient remedy on account of its action on the skin or its disagreeable after-taste. Its hygroscopic properties make it difficult of administration in the dry form in damp weather.

Dose.—Five to twenty-five grains, thirty-two centigrammes to one hundred and seventy-five grammes (.32 to 1.75), in pill form or in elixir.

FERRI LACTAS.

LACTATE OF IRON.

[Ferrous Lactate.]

Ferrum Lacticum, P. G.; *Lactas Ferrosus—Lactate de Fer*, Fr.; *Milchsaures Eisenoxydul, Eisenlactat*, G.

This preparation of iron is the result of a theoretical assumption that iron is naturally converted by digestion in the stomach into this salt, but this assumption, as shown in the general article on Iron, is erroneous. It is, however, an easily absorbable and but slightly disagreeable preparation. Its action is that of a feeble stimulant but not an irritant or astringent in

moderate doses. Its aqueous solution is liable to oxidation, hence the most convenient form of administration is in pill form or in a syrup.

Dose.—One to three grains, six to twenty centigrammes (.06 to .20).

FERRI OXALAS.

OXALATE OF IRON.

[Ferrous Oxalate.]

The special advantages of this preparation, unless its comparative insolubility be reckoned such, are not clear.

Dose.—Two to three grains, twelve to twenty centigrammes (.12 to .20), in pill form.

FERRI OXIDUM HYDRATUM.

HYDRATED OXIDE OF IRON.

[Ferric Hydrate.]

Ferri Peroxidum Humidum, B. ; *Antidotum Arsenici*, P. G. ; *Hydras Ferricus—Moist Peroxide of Iron*, E. ; *Peroxyde de Fer Hydraté Humide, Hydrate de Peroxide de Fer Gelatineux*, Fr. ; *Feuchtes Eisenoxyhydrat, Gegengift der Arsenigen Säure*, G.

This preparation is chiefly used as a chemical antidote to arsenic, the efficacy of which depends mainly upon its recent preparation and its liberal administration, whereby the arsenic mass is mechanically enwrapped, converted into the relatively insoluble arsenite of iron, and thus rendered insoluble in the stomach ; this admixture of arsenic and iron should therefore be, as soon as possible, removed from the stomach by provoking emesis or by the stomach-pump. A teaspoonful or a tablespoonful of the recently prepared moist "brown-red magma" should be stirred up in water and frequently administered, until there is a fair presumption of the chemical admixture of iron and arsenic. The necessary solutions are supposed to be kept always ready for combination. The following new and more convenient antidote to arsenic is taken from the German Pharmacopœia.

FERRI OXIDUM HYDRATUM CUM MAGNESIA.

HYDRATED OXIDE OF IRON WITH MAGNESIA.

This diluted solution of tersulphate of iron and aqueous magnesia mixture should be prepared just before administration, and given as de-

scribed in the previous article. It has the advantage over the previous preparation that the excess of the alkaline precipitant is not only not irritant but is itself an antidote to arsenic.

FERRI PHOSPHAS.

PHOSPHATE OF IRON.

[Ferric Phosphate.]

Ferrum Phosphoricum, P. G.; *Phosphas Ferroso-Ferricus—Ferroso-Ferric Phosphate*, E.; *Phosphate de Fer, Phosphate Ferroso-Ferrique*, Fr.; *Phosphorsaures Eisenoxydul*, G.

This is a very common and useful adjuvant to laxative pills, by which tone may be supplied to the torpid intestinal walls, so that the reactionary constipation ordinarily following the frequent use of cathartic drugs is somewhat obviated. The manufacture of pills with this salt is not so convenient nor so expeditious as with the dried sulphate of iron. The edition of 1870 required the use of sulphate of iron in this preparation, while the present edition specifies the citrate instead. The consequence of this change in formula makes the present phosphate of iron freely soluble in water, whilst that of 1870 was insoluble.

Dose.—Five to ten grains, thirty-two to sixty-five centigrammes (.32 to .65), in pill or solution.

FERRI PYROPHOSPHAS.

PYROPHOSPHATE OF IRON.

[Ferric Pyrophosphate.]

Ferrum Pyrophosphoricum cum Ammonio-Citrico, P. G.; *Pyrophosphate of Iron with Ammonium Citrate*, E.; *Pyrophosphate de Fer Citro-Ammoniacal*, Fr.; *Pyrophosphorsaures Eisenoxyd mit Citronensaurem Ammonium*, G.

The present formula differs from that of the previous edition by making the salt directly from the citrate of iron, whereas in the older formula sulphate of iron and citric acid were used. The present formula gives a salt as soluble as in the former edition. This salt in solution is almost tasteless and unirritating to the intestinal canal, and does not cause constipation.

Dose.—Two to five grains, thirteen to thirty-two centigrammes (.13 to .32), in pill or solution.

FERRI SULPHAS.

SULPHATE OF IRON.

[Ferrous Sulphate.]

Ferrum Sulphuricum Purum, P. G.; *Sulfas Ferrosus, Ferrum Vitriolatum Purum, Vitriolum Martis Purum—Ferrous Sulphate, Green Vitriol, Copperas*, E.; *Sulfate de Fer, Sulfate Ferreux*, Fr.; *Schwefelsaures Eisenoxydul*, G.

The chief use of this salt is in the preparation of the dried sulphate, precipitated sulphate of iron, compound mixture of iron, and compound pills of iron. It is not often used alone, as its irritant action is too pronounced.

Dose.—One to three grains, six to nineteen centigrammes (.06 to .19).

FERRI SULPHAS EXSICCATUS.

DRIED SULPHATE OF IRON.

[Dried Ferrous Sulphate.]

Ferrum Sulfuricum Siccum, P. G.; *Sulfate de Fer Desséché*, Fr.; *Entwässerte Schwefelsaures Eisenoxydul*, G.

Both this and the preceding sulphate are the most astringent and irritating ferrous salts, and gastric pain and distress are apt to follow their use in large doses, yet when the astringent and irritating effects are desired, as in hemorrhage, they are very desirable forms of iron, for instance in hemorrhage from the rectum, without concomitant inflammatory process.

In anæmia attended by constipation from a feebly sensitive condition of the mucous membrane in the lower portion of the bowel, a small dose of sulphate of iron makes a desirable adjuvant to a laxative pill.

Dose.—One-half to two grains, three to twelve centigrammes (.03 to .12), in pill form.

FERRI SULPHAS PRÆCIPITATUS.

PRECIPITATED SULPHATE OF IRON.

[Precipitated Ferrous Sulphate.]

This is a new form of sulphate of iron, but whether it has any especial advantage over the preceding will have to be determined by clinical experience. Its dose should be about the same.

FERRI VALERIANAS.

VALERIANATE OF IRON.

[Ferric Valerianate.]

Ferrum Valerianicum—Valerianate de Fer, Fr.; *Baldriansaures Eisen-oxyd*, G.

This is rather a convenient form of administering valerianic acid in its saline condition, but it is doubtful whether its medicinal virtues are any greater than in any other of its salts. A description of the medicinal use of valerian acid will be found under that head. It has the advantage of administering a disagreeable volatile medicine in pill form. It should not be prescribed in solution with strong acids.

Dose.—One to three grains, six to twenty centigrammes (.06 to .20).

FERRUM.

IRON.

See title next preceding Ferri Carbonas Saccharatas.

FERRUM REDUCTUM.

REDUCED IRON.

[Ferrum Redactum, 1870.]

Ferrum Redactum, P. G.; *Ferrum Hydrogenio Reductum, Ferrum Ope Hydrogenii Paratum—Iron reduced by Hydrogen, Iron by Hydrogen*, E.; *Fer réduit par l'Hydrogène*, Fr.; *Reducirtes Eisen*, G.; *Quevenne's Iron.*

This pulverulent preparation is, when free from impurities of sulphur, a very convenient form of administering iron, especially to chlorotic females, and in males in whom the stronger and more astringent preparations induce gastro-intestinal derangements. The best mode of administration is in powder, concealed, if it be desired, in wafers. It is also a convenient way of introducing iron into a pill. The fact must be remembered that in severe anæmia or chlorosis the first doses of iron should be very minute—smaller than those which cause the constitutional symptoms of iron intoxication—such as a stricture in the temples or chest, flushings of the face, or fulness of the head. It will be observed that if these symptoms be watched and avoided by diminishing the dose and then afterward cautiously increasing the amount, the anæmia will rapidly improve, unless it be from some organic disease.

Dose.—One-fourth to five grains, sixteen milligrammes to thirty-two centigrammes (.016 to .32), in powder or pill form.

FICUS.

FIG.

Caricæ, P. G.; *Ficus Passa, Fici, Fructus Caricæ, Figue*, Fr.; *Feige*, G.

Figs contain more than half their weight of glucose, as well as gum and fat, and hence possess some nutritive value. They form an excellent laxative, if taken fasting in the morning, and this action is probably caused by irritation of the intestinal mucous membrane by the seeds and skins. They are apt to cause slight colicky pains and flatulence. They also can be made into cataplasms for boils or abscesses, owing to the mucilage contained in their pulp.

FŒNICULUM.

FENNEL.

Fœniculi Fructus, Br.; *Semen Fœniculi, Fennel Fruit or Seeds*, E.; *Semences de Fenouil*, Fr.; *Fenchelsamen*, G.

Its activity is due chiefly to its volative oil. Used to allay slight pains and flatulence in stomach or bowels. It may be given in infusion or decoction of the bruised seeds, of which one or two teaspoonfuls may be given to an infant, and a wineglassful to an adult.

Dose.—In substance, indefinite.

FRANGULA.

FRANGULA.

[Buckthorn.]

Cortex Frangulæ, P. G.; *Alder Buckthorn, Black Alder*, E.; *Bourdaine, Bourgène*, Fr.; *Faulbaumrinde*, G.

A mild cathartic, which in large doses may cause from its irritation griping intestinal pains, so that it may be well administered with rhubarb or some other cathartic, by which the efficiency of each is improved. It resembles senna, both chemically and in its mode of action. The coloring matter passes into the urine.

Several species of rhamnus have been used in medicine as cathartics. The syrup prepared from the berries of rhamnus catharticus is obsolete in medical practice, but has still some popular repute. Rhamnus Purshiana is a recent candidate for medical favor under the title of cascara sagrada.

Rhamnus frangula is used chiefly in the form of a fluid extract, pre-

pared from dried bark, which is much milder in its action than the fresh. It is a useful mild cathartic or laxative.

Dose.—Two drachms to an ounce, eight to thirty grammes, in decoction with some aromatic syrup.

GALBANUM.

GALBANUM.

Gummi-Resina Galbanum—Galbanum, Fr.; *Mutterharz, Galban*, G.

A gum resin containing a volatile oil. Externally it is irritant. Internally it probably exercises an influence akin to that of assafœtida and ammoniac, but is seldom used alone. It is an ingredient of several plasters.

Dose.—Five to twenty grains, thirty to one hundred and twenty centigrammes (.30 to 1.20), in emulsion or pill.

GALLA.

NUTGALL.

Gallæ, P. G.; *Galla Halepense, vel Turcica, vel Levantica, vel Tinctoria, vel Quercina—Galls*, E.; *Noix de Galle, Galle de Chêne*, Fr.; *Galläpfel*, G.

Owes its medicinal virtue chiefly to sixty per cent. of gallo-tannic acid. It also contains two or three per cent. of gallic acid, together with other less active constituents. It is at present comparatively little used in medicine, the less bulky tannic acid being substituted for it. It may, however, be locally applied for the same purposes as tannic acid in the form of ointment, powder, or infusion, one ounce to one pint (thirty grammes to half a litre), which latter may also be given internally.

Dose.—Ten to twenty grains, sixty to one hundred and twenty centigrammes.

GAULTHERIA.

GAULTHERIA.

Folia Gaultheriæ—Wintergreen, Teaberry, Partridgeberry, Boxberry, Checkerberry, E.; *Feuilles de Gaulthérie (de Palommier), Thé du Canada, Thé de Terre-neuve*, Fr.; *Canadischer Thee, Bergthee*, G.

Contains a very agreeable volatile oil, found also in several other plants, especially the black birch (Betula lenta), as well as a substance something like gallic acid and several neutral constituents common to many of the

Ericaceæ. It possesses the mildly stimulating properties of the aromatics, with a little astringency. It may be used in hot infusion to promote the secretion of the menses and milk, and in cold infusion for diarrhœa.

Dose.—Indefinite.

GELSEMIUM.

GELSEMIUM.

Radix Gelsemii—Yellow Jessamine, E.; *Racine de Jasmin Jaune*, Fr.; *Gelber Jasmin-Wurzel*, G.

Contains an alkaloid, gelsemia, and a glucoside, gelseminic acid (Æsculin). It affects chiefly the motor nervous system, in large doses producing great muscular prostration, dilated pupils, spasms of the pharynx and larynx, some diminution of general sensibility, slow and irregular respiration, and a slow, irregular, and feeble pulse. Death takes place by apnœa. Morphia subcutaneously is the best antidote. The early symptoms, beyond which it is not carried for therapeutic purposes, are drooping of the eyelids, diplopia, and some muscular debility. The medical uses are few. Although it has been considerably used in fever on account of its reducing the pulse and temperature, it is much less so now, as there is no sufficient reason to attribute to it any favorable action on the disease itself. It is now used in facial, ovarian, and intercostal neuralgia and dysmenorrhœa. It is of benefit in many spasmodic affections and in various disorders attended with motor excitement.

Dose.—Would be, if used in substance, three to ten grains, twenty to sixty centigrammes (.20 to .60), every two hours, but the fluid extract and tincture are much more employed.

GENTIANA.

GENTIAN.

Gentianæ Radix, Br.; *Radix Gentianæ*, P. G.; *Radix Gentianæ Rubræ* (*vel Luteæ vel Majoris*)—*Gentian Root*, E.; *Racine de Gentiane* (*de Gentiane Jaune*), Fr.; *Enzianwurzel, Bitterwurzel, Rother* (*Gelber*) *Enzian*, G.

Several other members of this family possess similar properties, but are not officinal. Gentian contains, as an active principle, gentiopicrin, also enough sugar to form by fermentation a potable spirit. It is a simple bitter, used in gastric debility.

Dose.—In powder, eight to thirty grains, one-half to two grammes, he preparations are universally employed. The root may be chewed substitute for tobacco.

GERANIUM.

GERANIUM.

[CRANESBILL.]

Cranesbill Root, E. ; *Racine de Bec-de-grue Tachetè, Racine de Pied-de-Corneille*, Fr. ; *Fleckstorchschnabel-Wurzel*, G.

Contains thirteen to seventeen per cent. of tannin. Used as a mild and not disagreeable astringent in diarrhœa, especially of children. It may be given in substance, in the officinal preparations, or boiled in milk.

Dose.—In substance, fifteen to forty-five grains, one to three grammes.

GLYCERINUM.

GLYCERIN.

Glycerinum, Br., P. G. ; *Glycerine*, E. ; *Glycerine*, Fr.; *Glycerin, Oelsüss*, G.

Glycerin owes most of its medicinal value to its great affinity for water and its very slight volatility. The purest and most concentrated produces but little irritation of the skin, but upon a surface deprived of its epithelium it causes a sensation of burning and prickling, on account of the withdrawal of water, and on mucous membranes it may even cause inflammation. A moderate degree of dilution, however, entirely prevents these effects. Internally, moderate, or even quite large doses (eight to fifteen grammes) produce no marked effects, except occasional purgation. It seems to be possible to administer, by subcutaneous injection, enough of it to poison a dog ; but reckoning the dose in proportion to weight, it would require nearly a quart to produce fatal effects in man. The internal uses of glycerin are few. It does not appear to be appropriated as a nutriment or to produce in ordinary doses any useful effect. It has been proposed for use in diabetes in order to reduce the amount of sugar in the urine, or rather to hinder the transformation of starch into sugar, but there is no proof that it actually does this. It may, however, be used as an article of diet in this disease for sweetening tea, jelly, and other foods, since, while giving the desired taste, it is not converted into sugar. It is said that a teaspoonful or two, every few hours, is of service in correcting flatulence. It is very largely used as a vehicle for many drugs. It is well to introduce it into solutions intended to be preserved for hypodermic use, because it promotes the solubility of many alkaloids, and also checks decomposition. The digestive ferments are preserved by it from decomposition, while retaining their physiological effects, so that a glycerin extract of the pancreas, for instance, can be used to assist in human digestion.

Vaccine lymph can also be kept in this way. It may be applied, more or less diluted, to any portion of the body which it is desired to keep moist, as an ingredient of lotions or poultices, as in the ear or to the skin, or in dryness of the mouth, nasal passages, or pharynx. It can be used as a spray. Its affinity, when concentrated, for water makes it almost a depleting agent, as when applied on a cotton tampon to the cervix uteri. Several glycerites or glyceroles are officinal, but the strength of these, as well as the composition of these and others, is just as well left to extemporaneous prescription.

GLYCERITUM AMYLI.

GLYCERITE OF STARCH.

Glycerinum Amyli, B.; *Glycerine of Starch, Glycamyl, Plasma*, E.; *Glycéré d'Amidon, Glycérat Simple (d'Amidon)*, Fr.; *Stärke-Glycerit*, G.

Used as a vehicle for external applications. May be mixed with astringents, alkaloids, and many salts, and used like ointments, over which it has the advantage that it can be easily washed off.

GLYCERITUM VITELLI.

GLYCERITE OF YOLK OF EGG.

[Glyconin.]

Used as a local application in burns, erysipelas, etc. Also as a cosmetic.

GLYCYRRHIZA.

LIQUORICE.

Glycyrrhizæ Radix, Br.; *Radix Liquiritiæ Glabræ*, P. G.; *Radix Glycyrrhizæ Hispanicæ—Licorice Root, Spanish Liquorice Root*, E.; *Réglisse, Bois de Réglisse, Bois Doux, Racine Douce*, Fr.; *Spanisches Süssholz, Spanische Süssholz-Wurzel*, G.

Contains a resinous, oily matter, to which the slightly acrid taste is due, sugar, and a peculiar sweet substance, glycyrrhizin, represented in the next preparation. It can hardly be said to have a physiological action, except a very mildly laxative one. The commercial extract is said not to be well borne by some persons, giving rise to urticaria. It is used in decoction (boiled but a very short time) as a demulcent. Liquorice and its preparations are largely employed as corrigents to saline and bitter medicines, so largely, in fact, that it is difficult to say, in most cases, how much is attributable to each constituent.

Dose it can hardly be said to have.

GLYCYRRHIZINUM AMMONIATUM.

AMMONIATED GLYCYRRHIZIN.

The sweet principle of liquorice rendered soluble by ammonia. Used as a corrigent and flavoring. Possibly useful as a mild expectorant.

GOSSYPII RADICIS CORTEX.

COTTON-ROOT BARK.

Cotton-Root Bark, E.; *Écorce de Racine de Cottonnier*, Fr.; *Baumwollen-Wurzelrinde*, G.

Used for its action on the uterus in normal labor, and as an abortifacient; also in dysmenorrhœa and suppression of the menses.

A decoction (four ounces in a quart of water boiled to a pint) is given as an oxytocic in the dose of a wineglassful. It is not used in substance.

GOSSYPIUM.

COTTON.

[Purified Cotton—Absorbent Cotton.]

Bombyx, Lana (*Lanugo s. Pili*) *Gossypii—Coton*, Fr.; *Baumwolle*, G.

In its ordinary commercial state cotton absorbs water very slowly, only the outside of a small mass becoming wet. Absorbent cotton has been freed from fatty matter, and a mass of it becomes wet through at once. Cotton may be carbolized, borated, or salicylated by soaking in the proper solution and drying, and is then used for antiseptic dressings.

GRANATUM.

POMEGRANATE.

Cortex Radicis Granati, P. G.; *Écorce de la Racine de Grenadier* (*de Balaustier*), Fr.; *Granat-Wurzelrinde*, G.

Contains twenty-two per cent. of tannic acid and an aromatic oily alkaloid, pelletierina, which forms crystallizable salts with acids, and represents the anthelmintic properties of the drug. A decoction of sixty grammes has caused eructations, nausea, giddiness, indistinctness of vision, fainting, numbness, and cramps, and even convulsions, as well as copious stools. It is used in diarrhœa and leucorrhœa, as well as externally to ulcers, on account of its astringency. To remove the various kinds of tape-worm, the decoction just mentioned may be given in three or four doses within an hour. The addition of ginger syrup is said to diminish

the tendency to vomiting. If the bark is old and dry, the addition of a purgative may be necessary. The bark of the tree and the flowers are said to be efficacious. An East Indian extract prepared from the fresh bark is well spoken of.

Dose.—In substance, twenty to thirty grains, thirteen centigrammes to two grammes (.13 to 2).

GRINDELIA.

GRINDELIA.

The active principles are a resin and a volatile oil, which have not, however, been carefully studied separately. The preparations are used chiefly in asthma, which in many cases they relieve rapidly. It is useful also in whooping-cough and bronchitis. The fluid extract diluted ten times is a soothing local application in poisoning by ivy (Rhus toxicodendron) and in some skin diseases attended with itching and burning. In substance it is not used.

GUAIACI LIGNUM.

GUIACUM WOOD.

Lignum Guajaci, P. G.; *Lignum Sanctum (vel Benedictum, vel Vitæ)—Lignum Vitæ*, E.; *Bois de Gayac (de Gaïac)*, Fr.; *Guajakholz, Pockholz, Franzosenholz*, G.

GUAIACI RESINA.

GUAIAC.

Resina Guajaci, P. G.; *Guaiacum—Guaiacum Resin*, E.; *Résine de Gaïac*, Fr.; *Guajakharz, Guajak*, G.

The wood of guaiacum in small doses renders the pulse somewhat more rapid; in larger doses produces a sensation of heat in the throat and stomach, salivation, diarrhœa, colic, headache. Although it is said to increase the perspiration, it should be remarked that it is seldom given alone, but in the form of a decoction and under circumstances calculated to favor free sweating. The resin has not been carefully experimented on, but it is highly probable that, like other resins and volatile oils, it has a stimulant effect upon the heart and dilates the cutaneous capillaries. The wood has been used chiefly in the treatment of syphilis, simply as one ingredient of a somewhat complicated decoction, and has at present rather fallen into disuse. The resin in substance or the tincture is used in rheumatism, in amenorrhœa, and dysmenorrhœa. It has also been

considered to be of value in diphtheria and tonsillitis, the latter of which affections, when tending to the formation of an abscess, it is said to have the power to abort, given in doses of ten or more grains every four hours in a mixture with carbonate or nitrate of potassium and citric acid. For follicular tonsillitis, though possessing no specific power, the tincture makes a convenient and cleanly gargle when mixed with water.

Dose.—In substance, eight to thirty grains, one-half to two grammes.

GUARANA.

GUARANA.

[PAULLINIA.]

Pasta Guarana, P. G.; *Guarana*, Fr., G.

Contains from four to five per cent. of caffeine and a considerable amount of tannic acid. Its therapeutic value depends upon these two constituents, since it is used to cure headache on account of the caffeine, of which it contains a larger amount than any of the kindred drugs, and is said to be employed in its native country, Brazil, in the treatment of diarrhœal diseases. The indications for its use are those given under the head of Caffeine, and, like this, it is apt to lose its effect after a time.

Dose.—Eight to forty-five grains, one-half to three grammes, in powder or with some aromatic syrup or orange elixir.

GUTTA-PERCHA.

GUTTA-PERCHA.

Gutta-Taban—Gutta-Percha, Fr., G.

This substance is somewhat used in surgery as a material for splints, being softened in hot water, adapted to the limb while pliable, and allowed to harden. For use as a protective an officinal preparation is given, liquor guttæ perchæ.

HÆMATOXYLON.

HÆMATOXYLON.

[LOGWOOD.]

Hæmatoxyli Lignum, Br.; *Lignum Campechianum*, P. G.; *Lignum Cæruleum—Bois de Campêche, Bois d'Inde, Bois de Sang*, F.; *Blauholz, Campecheholz*, G.

This dyestuff and drug contains tannic acid and a coloring matter, hæmatoxylin, which in the presence of alkalies turns from rose red to

purple and dark red, but when pure is nearly colorless, becoming red on exposure to the light. Logwood is used in medicine as a mild astringent for diarrhœa and hemorrhage, especially in children. The coloring matter appears in the stools and sometimes in the urine, and may thus give rise to considerable alarm, unless the mother or nurse is forewarned that it does not denote a hemorrhage. It is not used in substance but in the form of decoction or officinal extract.

Dose.—Of the decoction, from one to two fluidrachms, four to eight cubic centimeters, for a child; two ounces, sixty cubic centimeters, for an adult.

HAMAMELIS.

HAMAMELIS.

[WITCH-HAZEL.]

A native plant which formerly enjoyed a reputation as the best material for the manufacture of divining-rods. The leaves, which are officinal, and the bark, contain tannic acid and a bitter principle. Witch-hazel is used chiefly as a local application to bruises, wounds, and inflammatory swellings, in the form of infusion or decoction, or the various proprietary "extracts." The fluid extract is officinal, and a decoction may be made by the general rule. It is also used internally, and is said to relieve inflammation, congestions, and hemorrhages, and to prevent miscarriage.

Dose.—Of decoction or infusion, half an ounce to an ounce, fifteen to thirty cubic centimeters.

HEDEOMA.

HEDEOMA.

[PENNYROYAL.]

American Pennyroyal, E.; *Herbe de Pouliot Américain*, Fr.; *Amerikanischer Poley*, G.

Contains a volatile oil which is officinal, and has the usual slightly stimulating effect of these oils. It is used for nearly the same purposes as anise, catnep, fennel, and many others. The odor of the plant, and especially of the oil, is very repellent to mosquitoes and other insects.

Dose.—Of an infusion, one ounce, thirty cubic centimeters, or more.

HUMULUS.

HOPS.

Lupulus, Br.; *Strobili Humuli s. Lupuli—Hop*, E.; *Houblon*, Fr.; *Hopfen*, G.

The active principles of hops are, a bitter, a resin, some tannic acid, a volatile alkaloid, and a volatile oil. These, except the tannic acid, are more abundantly contained in lupuline, a powder consisting of small glands connected with the scales of the strobile. Unfortunately the alkaloid found both in hops and in lupuline has long been named "Lupulina." "Humulina" would give rise to less confusion. The volatile oil seems to produce slightly sedative effects upon the nervous system and favors sleep. Hops are used for two distinct purposes in medicine; first, to stimulate appetite and digestion like other bitters; the tea, or infusion, or if alcohol is not contraindicated, beer, being the forms employed. Secondly, in the form of infusion, tincture, or fluid extract, to check "nervousness" and procure sleep. In irritability of the genito-urinary organs hops or lupulin is very often used. The external application has probably little value over that of any other non-irritating herb. The hop-pillow may, perhaps, have a slightly hypnotic effect from the volatile oil given off, but owes most of its efficacy to the imagination.

Dose.—Hops are not employed in substance, but the infusion of thirty grains to an ounce, two to thirty grammes, may be used.

HYDRARGYRI CHLORIDUM CORROSIVUM.

CORROSIVE CHLORIDE OF MERCURY.

[Corrosive Sublimate.]

Hydrargyri Perchloridum, Br.; *Hydrargyrum Bichloratum Corrosivum*, P. G.; *Hydrargyrum Muriaticum Corrosivum*, *Hydrargyrum Corrosivum Sublimatum*, *Hydrargyri Bichloridum*, *Sublimatus Corrosivus*, *Sublimatum Corrosivum*, *Mercurius Sublimatus Corrosivus*, *Chloruretum* (*Chloretum*) *Hydrargyricum—Perchloride of Mercury*, *Corrosive Sublimate*, *Bichloride of Mercury*, E.; *Deutochlorure de Mercure*, *Sublimé Corrosif*, *Chlorure Mercurique*, Fr.; *Ætzendes Quecksilberchlorid*, *Ætzender Quecksilbersublimat*, G.

As considerable confusion still reigns in regard to the names of the chlorides of mercury, it is more convenient and safer to abandon a strictly chemical nomenclature and adopt one which, if less scientific, is liable to no mistakes as to its meaning.

Corrosive sublimate is one of the most active, and at the same time

most manageable and efficient salts of mercury. The therapeutic dose used at the present time gives rise to few, if any, marked symptoms, and is less liable to produce the disagreeable or dangerous effects of mercury than almost any other preparation used for the same purpose. If, however, the dose is a large one, symptoms of irritant poisoning, as well as those of hydrargyrism, may make their appearance. The former consist in a metallic taste in the mouth, nausea, retching, and vomiting, severe burning pain in the stomach, diarrhœa — often bloody — collapse, and death. These closely resemble the symptoms of arsenical poisoning, but come on a little more rapidly after the ingestion of the poison, and present besides some difference in the taste, that of arsenic being at first sweet, while that of the sublimate is strongly astringent and metallic. If the case lasts long enough for the local symptoms on the part of the mouth and œsophagus to be developed, the distinction from arsenical poisoning will be clear. The antidote is white of egg or milk, which forms a comparatively insoluble precipitate. This, however, should not be allowed to remain in the stomach, but should be at once removed by emetics if the natural vomiting is not sufficient.

A solution of corrosive sublimate is sometimes used as a parasiticide or local application in skin diseases. It has in this method of application occasionally given rise to constitutional symptoms, and even death. The strength of a solution as a parasiticide may be one-eighth to one-half of one per cent. In other affections of the skin the weaker of these strengths should not be much exceeded. In either case care should be taken not to apply a mercurial lotion to an abraded skin. This salt has been used subcutaneously in the treatment of syphilis. An addition of an excess of chloride of sodium makes the solution less irritating. Eight milligrammes (.008) of mercuric chloride with eight centigrammes (.08) of chloride of sodium dissolved in two grammes of water makes a solution which is said not to produce local irritant effects.

Another solution may be prepared by adding a five-per cent. solution of mercuric chloride to white of egg diluted with four times its bulk of water and filtered, as long as a precipitate occurs. This precipitate is then redissolved by a twenty-per-cent. solution of sodium chloride and the whole filtered. The carbonate of sodium may be used, as in Liebig's method for estimating urea, to determine the point of saturation. This solution, carefully made and containing no excess of the mercurial, is of about the strength of one per cent., and is said to produce no local pain or inflammation, and to give good therapeutic results without disturbing the stomach. By the mouth mercuric chloride is given by pill or in solution, the former method being preferable on account of taste and the danger of disturbing the stomach. It is often given with iodide of potas-

sium, either with or without syrup of sarsaparilla. This mercurial is used chiefly in the treatment of syphilis; sometimes also in cases presenting similar symptoms without known specific antecedents, as, for instance, in organic cerebral disease.

Dose.—From one-sixteenth to one-fourth of a grain, four to sixteen milligrammes, (.004 to .016).

HYDRARGYRI CHLORIDUM MITE.

MILD CHLORIDE OF MERCURY.

[Calomel Mercurous Chloride.]

Hydrargyri Subchloridum, Br.; *Hydrargyrum Chloratum Mite*, P. G.; *Hydrargyri Chloridum*, *Hydrargyrum Chloratum* (*Muriaticum*) *Dulce*, *Mercurius Dulcis*, *Calomelas*, *Chloruretum* (*Chloretum*), *Hydrargyrosum*—*Subchloride* (*Protochloride*) *of Mercury*, *Calomel*, E.; *Protochlorure* (*Sous-Muriate*) *de Mercure*, *Calomèle*, Fr.; *Quecksilberchlorür*, *Calomel*, G.

This chloride of mercury is much less irritating than the preceding. A dose corresponding to what would be a fatal quantity of corrosive sublimate may produce no noticeable symptom, while one much larger will give rise only to two or three loose stools, with, in some cases, nausea and vomiting. There has been much controversy as to the way in which calomel is absorbed, it being supposed by some that calomel is converted by the chlorides of the intestinal secretions into the mercuric chloride. This, it is obvious, in view of the poisonous properties of the latter salt, can be true at most only of a very small proportion of the dose. It is probable, however, that only a small part of any dose is absorbed, while the remainder passes off with the fæces as a sulphide, and gives to them the dark color characteristic of "calomel stools." Calomel undergoes a slow change into the higher chloride in the presence of the alkaline chlorides, at a somewhat elevated temperature; but there is not enough of the poisonous salt developed in the intestinal canal in this way to make the precaution necessary of abstaining from salt food after a dose of calomel. The mercurous chloride is a mild, but tolerably certain cathartic, acting largely upon the upper part of the intestine. There is no proof that it increases the secretion of bile, as was formerly universally held, but rather the contrary, although clinical experience still points to it as one of the most efficient cathartics in that ill-defined condition known as "biliousness," and undoubtedly associated with disorder of the upper portion of the digestive tract. Calomel, in small repeated doses is much more liable to produce salivation than corrosive sublimate. It is used in medicine,

first as a cathartic, for which purpose it may be given in water, or simply placed upon the tongue, either alone or mixed with sugar, and washed down with a draught of water. It is often specially useful as a cathartic for children, since the risk of producing salivation in them is exceedingly small, and the tastelessness of the drug makes it very easy to administer. The dose must be, for children, somewhat larger proportionally. It is occasionally employed as an anthelmintic. Secondly, it is used to produce the constitutional effects of mercury, though much less than formerly. For this purpose it is given in smaller doses frequently repeated, and sometimes combined with a little opium to prevent its acting on the bowels. The faith in its power to control inflammation, especially of the serous surfaces, as in peritonitis, pleuritis, and pericarditis is not so strong or so prevalent as once. It is believed by some practitioners that mercury exerts almost a specific effect in disorganizing, loosening, and promoting the expectoration of the fibrinous exudation (false membrane) in croup. Although this is not proved, the trial may fairly be made by giving small doses until characteristic stools are produced. The relation of mercurous chloride to syphilis, is that of the mercurials generally. Anything beyond a single cathartic dose is especially to be avoided in Bright's disease. It has been used externally as an ointment (twelve per cent.) and as a powder in ulcer of the cornea.

Dose.—As a cathartic, five to fifteen grains, thirty centigrammes to one gramme (.30 to 1). For constitutional effect one-half to one grain, three to six centigrammes (.03 to .06).

HYDRARGYRI CYANIDUM.

CYANIDE OF MERCURY.

[Mercuric Cyanide.]

Hydrargyrum Cyanatum (*Borussicum*), *Mercurius Cyanatus s. Borussicus, Cyanuretum Hydrargyricum—Cyanuret of Mercury*, E.; *Cyanure* (*Bicyanure, Prussiate*) *de Mercure*, Fr.; *Cyanquecksilber, Quecksilber-Cyanid, G.*

This is a very active preparation, but is said to produce less gastric irritation than the bichloride. It is used to produce the constitutional effects of mercury, and should be given in the same doses as the bichloride.

Dose.—One-sixteenth to one-eighth of a grain, four to eight milligrammes (.004 to .008).

HYDRARGYRI IODIDUM RUBRUM.

RED IODIDE OF MERCURY.

[Biniodide of Mercury—Mercuric Iodide.]

Hydrargyrum Biiodatum Rubrum, P. G.; *Deutoioduretum (Biniodidum) Hydrargyri, Mercurius Iodatus Ruber, Ioduretum Hydrargyricum—Biniodide of Mercury*, E.; *Deut-Iodure (Bi-Iodure) de Mercure, Iodure Mercurique*, Fr.; *Rothes Jodquecksilber, Quecksilberjodid*, G.

This iodide corresponds to the corrosive chloride, which it resembles in its powerful irritant action. It is used to produce the constitutional effects of mercury, and may be administered in pill, or in solution with iodide of potassium. In the latter form, however, it is essentially the same as if the bichloride were used in the same dose.

Dose.—One-sixteenth to one-eighth of a grain, four to eight milligrammes (.004 to .008).

HYDRARGYRI IODIDUM VIRIDE.

GREEN IODIDE OF MERCURY.

[Protiodide of Mercury—Mercurous Iodide.]

Hydrargyrum Iodatum Flavum, P. G.; *Hydrargyrum Iodatum, Hydrargyri Iodidum (vel Proto-Ioduretum), Ioduretum, Hydrargyrosum—Yellow Iodide of Mercury, Mercurous Iodide*, E.; *Proto-Iodure de Mercure, Iodure Mercureux*, Fr.; *Quecksilberjodür, Gelbes Jodquecksilber*, G.

A less irritating preparation than the red iodide. Used to produce the constitutional effects of mercury in syphilis. It may be made into pills with any vegetable extract.

Dose.—One-half to one grain, three to six centigrammes (.03 to .06), three times a day, so long as no salivation or disturbance of digestion takes place.

HYDRARGYRI OXIDUM FLAVUM.

YELLOW OXIDE OF MERCURY.

[Yellow Mercuric Oxide.]

Hydrargyrum Oxydatum Via Humida Paratum, P. G.; *Hydrargyrum Oxydatum Præcipitatum (vel Flavum)—Precipitated Oxide of Mercury*, E.; *Oxyde de Mercure Jaune (Précipité)*, Fr.; *Präcipitirtes (Gelbes) Quecksilberoxyde*, G.

Used to prepare the officinal oleate and ointment.

HYDRARGYRI OXIDUM RUBRUM.

RED OXIDE OF MERCURY.

[Red Precipitate—Red Mercuric Oxide.]

Hydrargyrum Oxydatum Rubrum, P. G.; *Hydrargyri-Nitrico-Oxydum, Mercurius Corrosivus (Præcipitatus) Ruber, Oxydum Hydrargyricum—Peroxide of Mercury, Red Precipitate, Mercuric Oxide*, E.; *Deuto-Oxyde (Peroxyde) de Mercure, Oxyde Mercurique, Précipité Rouge, Poudre de Jean de Vigo*, Fr.; *Rothes Quecksilberoxyde, Rother Präcipitat (Quecksilber-Präcipitat*, G.

This preparation is used for syphilis. The dose should correspond to that of the other mercuric salts. It is used externally as an ointment or powder to indolent ulcers, and so forth. Its local application is said to have been frequently followed by constitutional effects.

Dose.—One-sixteenth to one-fourth of a grain, four to sixteen milligrammes (.004 to .016), three times a day.

HYDRARGYRI SUBSULPHAS FLAVUS.

YELLOW SUBSULPHATE OF MERCURY.

[Hydrargyri Sulphas Flava, *Pharm.*, 1870—Basic Mercuric Sulphate—Turpeth Mineral.]

Hydrargyri Subsulphas, Hydrargyrum Sulphuricum Flavum, Mercurius Emeticus Flavus, Sulphas Hydrargyricus Flavus, Turpethum Minerale—Subsulphate of Mercury, Turpeth Mineral, E.; *Sulfate Trimercurique, Sulfate Jaune de Mercure, Turbith Minéral*, Fr.; *Basisch Schwefelsaures Quecksilberoxyd, Mineralischer Turpeth*, G.

Turpeth mineral is an efficient and usually harmless emetic, operating promptly and without much general depression. It has, however, caused severe and even fatal symptoms, both from its occasional local irritant action and its constitutional effect. Special efficacy in "croup" has been claimed for it, but there is no reason to suppose that it possesses any control over either form of croup beyond that of many other emetics which involve much less serious risks.

Dose.—For a child, two to three grains, twelve to eighteen centigrammes (.12 to .18).

HYDRARGYRI SULPHIDUM RUBRUM.

RED SULPHIDE OF MERCURY.

[HYDRARGYRI SULPHURETUM RUBRUM, *Pharm.*, 1870—RED MERCURIC SULPHIDE—CINNABAR.]

Hydrargyrum Sulfuratum Rubrum, P. G.; *Cinnabaris, Sulfuretum Hydrargyricum—Red Sulphide of Mercury, Cinnabar, Vermilion*, E.; *Sulfure Rouge de Mercure, Cinnabre*, Fr.; *Rothes Schefelquecksilber Zinnober*, G.

This salt is not used internally, but would probably be, on account of its insolubility, comparatively inactive. It is used for mercurial fumigation, the patient being enclosed in a box, or tent of blanket or rubber cloth, through the top of which his head passes, so that he may not breathe the fumes of sulphurous acid caused by the decomposition and combustion of the cinnabar. The cinnabar is burnt on coals or over a lamp placed beneath the patient, and the vapors contain metallic mercury and sulphurous acid. Local applications to syphilitic ulcerations, etc., can be made on a smaller scale by conducting the fumes through a tube to the affected part, or by the use of cinnabar cigars containing from three to six grains (.18 to .36) each. Fumigation is used to produce the specific effects of mercury in syphilis, and is preferred by some syphilographers as being less liable to disturb the digestion than the internal administration of mercury, and as more cleanly than inunction. Calomel is, however, often preferred to the present salt for this purpose.

HYDRARGYRUM.

MERCURY.

[QUICKSILVER.]

Hydrargyrum, Mercurius Vivas, Argentum Vivum—Quicksilver, E.; *Mercure, Vif-Argent*, Fr.; *Quecksilber*, G.

Crude mercury is seldom used in medicine, although it has been given to the extent of many ounces in order to act mechanically in supposed intestinal obstruction. It cannot be said to have any local action except by its weight and bulk, unless some substance capable of acting upon it chemically is present in the intestinal canal at the same time. The constitutional effects, although produced by some preparations more readily than by others, are essentially the same with all. Mercurial poisoning may be produced by inhaling the vapor of the metal, as in some processes of gilding, the "silvering" of looking-glasses, or the breakage in confined spaces, as on board ship, of packages containing it. Mercury probably

exists in the blood as a double albuminate. It is eliminated by all the secretions, but especially by the urine. After a prolonged administration, however, a considerable quantity may remain behind, as can be shown by its reappearance in the urine upon the administration of iodide of potassium. It is said also that metallic mercury has been found in the body, but this must be very rare.

The earliest and most marked symptom of the constitutional action of mercury, beyond its therapeutic effects, is a stomatitis beginning with a little tenderness and redness along the edge of the gums and increasing, if the cause continues, until the whole mouth is inflamed, the gums swollen, the teeth loosened, the salivary glands tender, swollen, and secreting large quantities of thin saliva of a peculiar, disagreeable, and characteristic odor. Ulceration and gangrene of the lips and tongue may take place in extreme cases. The local inflammation is attended with fever, the appetite usually fails, and there is a tendency to diarrhœa. The susceptibility of different individuals varies greatly, and in some cases the administration of a single dose of one of the milder preparations may be followed by troublesome salivation. Fortunately, it is not thought necessary at the present day to produce these effects for therapeutic purposes, since the beneficial action of mercury in disease has nothing to do with the elimination of a hypothetical poison by the salivary glands. A long-continued use of mercury gives rise to general impairment of nutrition, as shown by emaciation, pallor, œdema, and a tendency to hemorrhage and the wasting of newly formed callus and cicatrices. Fatty degeneration of the kidneys may be shown by the appearance in the urine of albumen and casts, and it is probable that other organs share the same fate. Cutaneous eruptions, usually erythematous, may make their appearance, though less frequently than was formerly supposed. Neuralgia and a peculiar tremor somewhat resembling that of disseminated sclerosis are the earliest nervous symptoms, which are said to be followed by headache, sleeplessness, epilepsy, and coma. While large doses of mercurials administered to persons or animals in good health rapidly reduce the number of the red corpuscles of the blood, the contrary effect has been clearly demonstrated when they are given to persons already anæmic, and especially syphilitic, and the drug is kept within proper limits. This has been spoken of as the "tonic" treatment of syphilis. Two of the three (and perhaps all) of the preparations made with metallic mercury probably contain small quantities of oxide, which undoubtedly increases their efficiency. They are Hydrargyrum cum Creta, Massa Hydrargyri, and Unguentum Hydrargyri. They can all be used to obtain the constitutional effect of mercury, but the two former are chiefly employed as mild cathartics or "cholagogues," the powder for children, the mass for adults.

HYDRARGYRUM AMMONIATUM.

AMMONIATED MERCURY.

[White Precipitate—Mercur-Ammonium Chloride.]

Hydrargyrum Præcipitatum Album, P. G.; *Hydrargyrum Amidato-Bichloratum (Ammoniato-Muriaticum)*, *Hydrargyri Ammonio-Chloridum*, *Mercurius Præcipitatus Albus—White Precipitate*, E.; *Oxychlorure Ammoniacal de Mercure*, *Mercure Précipité Blanc*, Fr.; *Weisser Quecksilber-Präcipat*, *Quecksilber-Chloridamidid*, G.

Is used only to make the officinal ointment. It may, if taken internally by accident, give rise to poisoning, like that from corrosive sublimate.

HYDRARGYRUM CUM CRETA.

MERCURY WITH CHALK.

Mercure avec la Craie, Poudre de Mercure Crayeux, Fr.; *Quecksilber mit Kreide*, G.

Contains the metallic mercury in a state of minute subdivision and more or less of the oxide. If mercuric oxide be present in any considerable quantity the action, will be much more violent than is usual or intended. It is used chiefly as a mild cathartic in the bowel disorders of children.

Dose.—From three to ten grains, twenty to sixty centigrammes (.20 to .60).

HYDRASTIS.

HYDRASTIS.

[Golden Seal.]

Rhizoma Hydrastis—Golden Seal, Yellow Root, Yellow Puccoon, Orange Root, Indian Dye, Indian Tumeric, E.; *Racine d'Hydrastis de Canada*, Fr.; *Canadische Gelbwurzel*, G.

Hydrastis contains the yellow bitter alkaloid berberina, and the colorless also bitter hydrastia, besides a volatile principle not yet isolated or minutely examined. It has been put forward among a great variety of other uses as a specific for cancer. Its virtues are probably those of many other simple bitters, and it may be used as a stomachic tonic and in mild cases of intermittent fever, upon which, however, it has no specific effect. The hydrastin of the eclectics is an impure muriate of berberina, and is

administered in doses of three to five grains, twenty to thirty centigrammes (.20 to .30).

Dose.—One or two fluidounces, thirty to sixty grammes, of an officinal decoction may be used. The drug is not used in substance, but we may state the dose, half a drachm to a drachm, two to four grammes (2 to 4).

HYOSCYAMINÆ SULPHAS.

SULPHATE OF HYOSCYAMINE.

The physiological action of this alkaloid and that of atropine so closely resemble each other that they are said by some high authorities to be qualitatively identical. Slight discrepancies in their action are accounted for by the difficulty of obtaining the hyoscyamia in a state of purity. There seems to be abundant evidence, however, that, notwithstanding their great similarity, hyoscyamine exercises a much more marked hypnotic effect upon the cerebrum. In other respects, except the dose, the reader will find an account of its action under the head of Atropine. The dose is sometimes considerably larger. Hyoscyamine may be used for the same purpose as atropine, but has also been employed as a hypnotic or sedative in conditions of excitement, as in mania; also in paralysis agitans, chorea, locomotor ataxia, and tetanus. Unfortunately, even yet, hyoscyamine is liable to vary considerably in strength, or rather, purity, and consequently statements as to the effects of similar doses will exhibit decided discrepancies.

Dose.—From one-sixtieth of a grain to one grain, one to sixty milligrammes (.001 to .060).

HYOSCYAMUS.

HYOSCYAMUS.

[Hyoscyami Folia, *Pharm.*, 1870—Henbane.]

Herba Hyoscyami—Henbane Leaves, E.; *Feuilles de Jusquiame Noir*, Fr.; *Bilsenkrant*, G.

For a description of the action of this drug the articles on Belladonna and Atropina may be consulted. It differs but very slightly from belladonna, except in its greater tendency to produce sleep. Poisoning from it is to be treated in the same way as that from belladonna. Even the increased hypnotic tendency is not always observed, since a talkative and restless delirium is described as occurring in many cases. The preparations of henbane are of the most uncertain strength, so that the effective dose of the extract (no longer officinal) ranged from two to two hundred and fifty grains. The present alcoholic extract, made from recent leaves,

is much more efficient. The quantities frequently prescribed as "corrigent" in cathartic pills are probably of no more value than any inert extract which might be used as an excipient.

Dose.—Of the dried leaves (seldom used), five to ten grains, thirty to sixty centigrammes (.30 to .60).

ICHTHYOCOLLA.

ISINGLASS.

Colla Piscium, P. G.—*Fish-Glue*, E.; *Colle de Poisson, Ichthyocolle*, Fr.; *Hausenblase, Fischleim*, G.

The swimming bladders of many fishes are prepared as isinglass, and generally receive the name of the geographical region from which they are derived. Isinglass consists almost entirely of gelatine. It is used in cooking with milk or various puddings, to give to them a gelatiniform consistence, but its nutritive value is extremely slight. Gelatine is used to make plasters, capsules, and suppositories.

IGNATIA.

IGNATIA.

[Bean of St. Ignatius.]

Semen Ignatiæ, Faba Ignatii—Ignatia, Bean of St. Ignatius, E.; *Fève de Saint Ignace, Fève Igasurique*, Fr.; *Ignazbohnen*, G.

This drug, not used in substance, contains strychnia in larger proportion than nux vomica and also brucia. Its activity depends solely upon these alkaloids (see Strychnina), and its preparations are used for precisely the same purposes as those of nux vomica. Ignatia is not given in substance.

ILLICIUM.

ILLICIUM.

[Star-Anise.]

Fructus (Lemon) Anisis Stellati, Semen Badiani—Badiane, Anise Étoilé, Fr.; *Sternanis*, G.

This herb, of an entirely different family from anise, is recognized as a source of the officinal oleum anisi. A native species, illicium floridanum, yields a similar oil, and illicum parviflorum an oil resembling that of sassafras.

INFUSA.

INFUSIONS.

Infusions, Fr.; *Heisser Aufgüsse*, G.

This class of preparations, usually made with hot water, but without ebullition, is likely to contain the odoriferous and sapid constituents of drugs, since the volatile oils are readily extracted. The more fixed constituents, like alkaloids, glucosides, tannic acid, and others, are likely to be more thoroughly exhausted by boiling or decoction, although in the case of leaves or flowers which can be rapidly permeated by the menstruum, the active principles may be obtained with sufficient completeness for practical purposes. The infusions are likely, in many cases, to be of domestic rather than of officinal preparation, and have then the advantage of being usually fresher; while, on the other hand, they may be less skilfully prepared. The general rule adopted by the Pharmacopœia, which may, however, at any time be departed from by special direction, answers every purpose of accuracy as well as if special directions were given for each drug. The few cases in which special directions are given by the Pharmacopœia differ in the proportions of the active ingredient from the ten per cent. prescribed by the general rule.

INFUSUM BRAYERÆ.

INFUSION OF BRAYERA.

This is the usual preparation for obtaining the anthelmintic effect of kousso. Its action is attended with more or less colic and intestinal disturbance. If the "parts" of the Pharmacopœial formula are taken as forty to forty-six grains, or two and a half to three grammes, the whole quantity may be taken at once, or in two doses at an hour's interval.

Citric acid or lemonade is said to diminish the liability to vomiting.

INFUSUM CINCHONÆ.

INFUSION OF CINCHONA.

This preparation contains all the alkaloids of the bark, and will vary somewhat in composition according to the kind of bark used. It does not contain enough of the alkaloids to be of value as an antipyretic, but is used simply as a tonic.

Dose.—One or two ounces, thirty to sixty grammes (30 to 60), three times a day.

INFUSUM DIGITALIS.

INFUSION OF DIGITALIS.

This preparation is preferable to a decoction, as the important glycoside would undergo a partial decomposition by boiling. The American infusion is of about twice the strength of the British, but the dose is stated in English medical works as considerably smaller than that accepted by many American authorities. It is generally regarded as the most efficient form for the administration of digitalis, especially when a diuretic action is desired.

Dose.—One to four drachms, four to sixteen grammes or cubic centimeters (4 to 16), two to three times a day. A teaspoonful contains about a grain of the herb.

INFUSUM PRUNI VIRGINIANÆ.

INFUSION OF WILD CHERRY.

This infusion is made with cold water, since with hot the ferment by which hydrocyanic acid is developed would be rendered inert. It is used for the tonic action of the bitter contained in it, and also for the locally anæsthetic and sedative action of the hydrocyanic acid, although the latter is probably not very powerful unless extremely large doses are given. If a decided and definite effect of hydrocyanic is desired, it would be better to use the officinal acid, of which the dose is more exact. It may be used to diminish dyspeptic symptoms, and cough dependent on local irritation, as in phthisis.

Dose.—Two or three fluidounces, sixty to ninety cubic centimeters, several times a day.

INFUSUM SENNÆ COMPOSITUM.

COMPOUND INFUSION OF SENNA.

[Black Draught.]

This classic draught has almost everything in its favor except its taste, and is, or was, used when a single dose of an efficient but not drastic cathartic is required. It is less griping than senna in substance, or than a simple decoction would be, since the short time during which the infusion stands is not enough to extract all the bitter and acrid principles of the senna, and also because the aromatics and salines of the compound act as corrigents to the herb which gives it its name. Other prescriptions having the same efficacy might easily be made with other aromatics and

salines. If the "parts" directed in the officinal formula are taken to be fifteen grains, or one gramme, the whole quantity will be about an average **Dose,** one hundred grammes, seventy-five cubic centimeters, two fluid-ounces and a half.

INULA.

INULA.

[ELECAMPANE.]

Radix Helenii, P. G.; *Radix Inulæ, Radix Enulæ—Racine d'Aunée, Aunée Commune (officinale)*, Fr.; *Alantwurzel, Helenenwurzel*, G.

Owes its reputation rather to tradition than to its intrinsic merits. It contains inulin, a substance closely allied to starch, and probably without medicinal value, a bitter principle not well defined, helenin or elecampane-camphor, and a little volatile oil. None of these seems capable of imparting great virtue to the root, especially as the camphor, being insoluble in water, cannot be contained in the decoction, which is the usual form in which elecampane is administered. Elecampane has had a reputation in a large number of diseases, but is now chiefly used as a domestic remedy in chronic bronchitis, dyspepsia, and amenorrhœa.

Dose.—From fifteen to sixty grains, one to four grammes (1 to 4); of a decoction made by the general rule, three to six drachms, twelve to twenty-four grammes; of a weaker one (one-half ounce to the pint), one or two ounces.

IODOFORMUM.

IODOFORM.

Iodoformium, P. G.; *Iodoforme*, Fr.; *Jodoform*, G.

This somewhat recent introduction to therapeutics contains more than ninety-four per cent. of iodine, and its earlier applications were based upon this fact, so that it was used chiefly as a so-called alterative. A further experience tends rather to assimilate it to chloroform, with which it is identical in composition, iodine being substituted for chlorine. It is absorbed from the stomach or from any raw surface, less rapidly from a granulating one. After its use iodine may be detected in the urine for hours or even days. Its smell may be detected in the breath. Its local action is anæsthetic and antiseptic. When absorbed it is supposed to be "alterative" in small doses, and known to be occasionally a narcotic poison in large ones. Its long-continued surgical use has been followed by symptoms resembling, in many respects, those of meningitis, but without any characteristic post-mortem appearances. They were a rapid

pulse, vomiting, sensorial disturbances, muscular contractures, and death; all this going on without any rise of temperature. In other cases there were mental disturbances, usually taking the form of melancholia, often with delusions, refusal of food, and death. In many cases the symptoms do not abate with the withdrawal of the drug. These results are, however, exceptional and seem to follow more particularly cases where a freshly made wound is filled with large quantities (many grammes) of powdered iodoform. Its most important uses are local, and it may be advantageously used as an application to a great variety of ulcers—cancerous, syphilitic, varicose, and gangrenous. It may be applied in chronic nasopharyngeal catarrh. The beneficial effects in gastralgia are probably due to local action.

Iodoform has also been used in the treatment of recent wounds, and a system of dressing adopted, consisting essentially in a careful washing with carbolic acid, and subsequent covering the surface with successive layers of iodoform gauze or cotton. As an application to ulcers, it relieves pain and prevents the decomposition of secretions, thus favoring rapid healing. One important objection to its use is its very powerful odor, which it is almost impossible to conceal or disguise, and which is liable to convey a suspicion of syphilitic trouble. Tonka bean and the oils of bergamot, myrrh, and eucalyptus have been used to more or less disguise the odor. In dressing ulcers, much may be done to obviate this inconvenience by using, instead of the powder, an ethereal solution which leaves a film upon the surface of the wound. This may be then covered with a layer of collodion. A covering of rubber cloth or other impermeable material would also aid in suppressing the smell. Iodoform is not to be depended on for the cleansing of instruments or the hands, in carrying out a thoroughly antiseptic operation. The topical application to ulcers may be made by blowing on a powder, or by painting or blowing on an ethereal solution, or wads of cotton thoroughly impregnated with dry iodoform may be used in various localities. An ointment may be made with any excipient, *e.g.*, petrolatum; or iodoform may be dissolved in alcohol or glycerine. In painful affections of the rectum or uterus suppositories of iodoform with cocoa butter will afford much relief; for fistulæ or sinuses, or for introduction into the urethra, pencils made with gelatine are a convenient and elegant form. From the unirritating and anæsthetic character of the drug these preparations may be of almost any strength. Internally iodoform is frequently combined with iron and used for neuralgia, as well as a general "tonic and alterative" in syphilis and other cachexiæ.

Dose.—Internally, one to three grains, six to eighteen centigrammes (.06 to .18). It would be well, on account of odor, to administer iodoform, as far as possible, in coated pills or in capsules.

IODUM.

IODINE.

[IODINUM, *Pharm.*, 1870.]

Iodum, Br., P. G. ; *Iode*, Fr. ; *Jod*, G.

Iodine is locally an irritant and caustic, producing, if applied to the skin, first a yellow color which on successive applications becomes darker, while the epidermis is made dry and finally exfoliates, leaving behind usually a newly formed layer. On thin skins, however, a blister is sometimes formed. The pain from a single application of the ordinary tincture is usually none, or very trivial, but may after two or three repetitions become severe and of a burning or prickling character. A more rapid and severe effect may be produced by an ethereal tincture. A measly or papular eruption may be observed in the neighborhood. By the mouth, doses of from five to ten centigrammes produce a sharp taste, itching in the throat, and possibly a little nausea. Larger ones (twenty centigrammes), vomiting and a feeling of oppression ; thirty centigrammes (five grains), thirst, salivation, colic, and diarrhœa, with increased frequency of pulse. Still larger doses produce decided gastro-enteritis, with giddiness, headache, restlessness, and convulsions. The matter discharged by vomiting will be either brownish-yellow, if simply albuminous or saccharine, but blue if starch is present. The antidote to be administered is starch or raw eggs. These symptoms have also been observed after the external application of iodine or its injection into large cavities. It should be noted that in some instances these doses have been greatly exceeded without very serious effects. Iodine is absorbed with considerable rapidity from the stomach, serous cavities, or the interior of cysts, and to some extent from the skin, but it is doubtful if the ordinary superficial application to the skin produces any specific effect upon the underlying tissues. It makes its appearance rapidly in the secretions, probably in the form of iodide of sodium. The largest amount is removed by the urine, and its elimination by this channel soon ceases when the administration is stopped, but continues much longer by way of the saliva and gastric juice.

Among the earlier constitutional effects of iodine, given for some time in doses not sufficient to produce gastro-intestinal irritation, is to be reckoned the characteristic iodic coryza, consisting in swelling of the mucous membrane of the upper air-passages, the conjunctivæ, and adjacent portions of the face, attended with some headache and a profuse discharge of watery secretion. A patient unfamiliar with this effect usually thinks that he has caught a bad cold in the head. The cutaneous eruption which is most characteristic, is acneform, occupying the face and shoulders, but

furuncular and purpuric eruptions have been seen after iodide of potassium. Salivation is occasionally seen, of a much milder character than that from mercury, except in cases where mercury has been previously used, when it is really mercurial salivation, renewed by the increased solubility of the metal in an iodic solution.

Beyond this point it is difficult to disentangle the symptoms due to iodine itself and those from iodide of potassium, and it is unfortunate that writers have taken so little pains to distinguish them. It is very noticeable, however, that our knowledge of so-called iodism is based chiefly upon reports made many years ago, when iodine and not iodide of potassium was in use, and while these descriptions are repeated in all systematic treatises, the writers themselves bring forward no new instances, and often deny that they have in their own practice seen anything of the kind.

Many of the cases also occurred in goitrous districts, and it was acknowledged that they were extremely rare elsewhere, so that it has been supposed that residence in the climate where goitre occurs renders the constitution peculiarly susceptible to the influence of iodine. It seems reasonable to refer a large part of iodism to gastro-intestinal irritation, which is a result of the use of iodine, and not of iodide of potassium. Further, the specially nervous symptoms, such as neuralgia, palpitation, sleeplessness, headache, tremor, disordered vision and hearing, are certainly the rarest of accidents after iodide of potassium. On the other hand, mental dulness, depression, and melancholy are more frequently seen, but still by no means common with either form. Wasting of glandular organs, especially the thyroid, the mammæ, and the testicles, and general emaciation, often combined, singularly enough, with a morbid appetite, are among the often-described, but much less frequently seen, accidents connected with the use both of the metalloid and the salt. The susceptibility of different individuals undoubtedly varies very widely, both in regard to the slighter symptoms, such as the metallic taste and coryza, and the more serious ones just spoken of. Those uses of iodine only will be described here for which iodide of potassium is unfitted or regarded as less efficient, since for the constitutional effects the iodide is in almost all cases to be preferred on account of the absence of gastro-intestinal irritation.

For its local effects iodine may be used in the form of tincture, or when a less irritating application is desired, the "liquor iodi compositus" (Lugol's solution) to various ulcerations, including those of the skin, tonsils, fauces, and uterus, and in some cutaneous diseases. As a counter-irritant the tincture is painted two or three times over chronic inflammatory swellings or over painful spots, being much less troublesome and dirty than many other remedies of the same class. There is very little reason to suppose, however, that its action differs materially in kind from

these, so far as any effect upon the deeper-seated tissues is concerned. Iodine, especially in the form of the ethereal tincture, has been supposed to arrest the spread of erysipelas when painted around it; but it often, if not always, fails, like other external applications, to have any effect upon it. The tincture, and also Lugol's solution, is often injected into serous sacs, as in hydrocele, pleurisy, synovitis, and even pericarditis, although milder solutions are more generally used. Ovarian cysts as well as fistulæ and abscesses are treated in the same way. The object in many of these cases is to excite an adhesive inflammation, in others to act as an antiseptic. The risk of absorption should be borne in mind, but unless the amount injected be excessive, no harm is likely to occur. The tincture has been injected through a hollow needle into the substance of solid organs in a state of chronic inflammation, as the tonsils and the thyroid. A weak solution may be used as a disinfectant and stimulating wash or gargle, or the strong preparations may be applied with a brush in local affections of the mouth and fauces, including diphtheria.

The vapor, which is easily produced by warming the dry scales, has been used in naso-pharyngeal catarrh, laryngitis, and bronchitis. It is, however, quite irritating, and should not be breathed in too great concentration. It has also been proposed to evaporate the solid iodine from a hot plate in rooms to be disinfected, a method which has convenience in its favor but expense against it. In the stomach Lugol's solution has been used as an antidote to alkaloidal poisons, with which it forms a precipitate. This, however, is only relatively insoluble, like most others formed with alkaloids in the stomach, and should consequently be evacuated as soon as possible. The earliest use made of iodine in medicine was in the form of burnt sponge as a remedy for goitre and scrofula, and for these purposes iodine is still preferred to the iodide of potassium. Iodine may be administered in pill, but in this case there is likely to be a too irritant action at the point at which the drug touches the mucous membrane, and hence the liquid preparations sufficiently diluted or the iodized starch are to be preferred.

Dose.—One-fourth to one grain, sixteen to sixty milligrammes (.016 to .060).

IPECACUANHA.

IPECAC.

Radix Ipecacuanhæ, P. G.; *Ipecac*, E.; *Ipécacuanha, Racine Brésilienne*, Fr.; *Brechwurzel, Ruhrwurzel*, G.

The most important principle of ipecac is the alkaloid emetina, which is to be found also in several other non-officinal roots also known as ipe-

cac. It also contains an astringent acid allied to caffeo- and cincho-tannic acid. Emetina, and, to a less extent, ipecacuanha, are local irritants. If applied to the skin for some time they cause erythema and dermatitis. The powder of the crude drug gives rise, in many persons, to considerable irritation of the conjunctivæ and air-passages, and in a few specially sensitive to severe coryza. In animals gastro-enteritis has been observed as a result of its operation.

The most important and noticeable effect of ipecac in man is vomiting, which follows its administration in from ten to thirty minutes, is attended with much less depression and general disturbance, and is less persistent than that from tartar-emetic, but is less prompt and more depressing than that from certain others, such as mustard or the sulphates of zinc or copper. In animals, however, it has produced diminished activity of the heart and respiration, fall of temperature, paralysis of sensitive nerves, and diminished nervous and muscular excitability and collapse. These effects, including the vomiting, can be produced by the injection into the veins, or hypodermically, of emetina in somewhat larger dose than would be necessary by the mouth. The vomiting is somewhat more tardy in appearing. After such injection the emetina may be found in the contents of the stomach or in the matter vomited. It is probable that ipecac acts as an emetic by being brought in contact with the mucous membrane of the stomach by whatever channel it may be introduced, which, however, in fact, is always the mouth. Its elimination by the kidneys and bronchial mucous membrane is asserted, and certainly the latter method would afford the best explanation of its expectorant effects. Susceptibility to the action of ipecac varies materially in different persons. One to five or six centigrammes, in water or with sugar, produces in most cases no noticeable effects, but might in the sensitive cause nausea. From this point up to one or two grammes, fifteen to thirty grains, the effects would gradually increase, until, with the dose mentioned, vomiting would almost invariably take place, unless some special reason, like the tolerance established by successive doses, or the influence of some narcotic, like opium, interfered to prevent.

If the ipecac is administered in a very large quantity of water the vomiting will be less and the cathartic action greater. Ipecac is occasionally used as a stomachic tonic, in doses of not more than one grain, six centigrammes, and to prevent vomiting, in drop doses of the wine. The efficacy of this latter procedure over that of other drugs administered in the same way, little and often, is not yet established. For many of the purposes of an emetic, such as relieving an overloaded stomach, or in some spasmodic respiratory diseases, ipecac, on account of the mildness of its action and the slightness of its general depressing effects is undoubtedly the best; but

when haste is necessary, as in a case of poisoning, one of the more promptly acting emetics, like the sulphate of copper or zinc, should be substituted or added, or apomorphia may be used subcutaneously. The permanent relief of spasmodic croup, and the temporary improvement in the dyspnœa, often obtained in pseudomembranous laryngitis from a single act of vomiting, are not to be confounded with the expectorant effect of ipecac. The former is due to a general muscular relaxation in which the muscles of the larynx share, and to the mechanical removal of mucus, and, in rare instances, loosened false membrane from the fauces and the upper air-passages. Ipecac is just as little and just as much a specific in these diseases as any other emetic. The expectorant action consists in liquefying the bronchial mucus or promoting its freer secretion and removal. For this purpose small doses, not sufficient to vomit, are used. The objection to its employment is its liability to produce loss of appetite, which, in many of the diseases requiring the use of an expectorant, it is very important to preserve.

Many cases of chronic diarrhœa and dysentery are greatly benefited by ipecac, which has either been given in small doses combined with opium, or in large ones of the powder (bolus) or decoction. The large doses should be preceded by opium, and the patient should remain as quiet as possible in order that the drug may not be vomited. Enemata have also been advantageously employed.

The diaphoretic action of ipecac is utilized and added to by that of opium in the well-known Dover's powder.

Dose.—Expectorant, one or two grains, six to twelve centigrammes (.06 to .12), once in two or three hours; emetic, fifteen to thirty grains, one to two grammes. This may be divided into two doses, of which the second may be given if the first fails to operate in ten or twenty minutes.

IRIS.

IRIS.

[Blue Flag.]

Rhizome d'Iris Varié, Glaïeul Bleu, Fr.; *Verschiedenfarbige Schwertlilie*, G.

This drug owes its medicinal virtues to an oleo-resin, which has not been specially studied. It is emetic and cathartic, but recent investigations have assigned to the impure resin called iridin, in doses of from one to four grains, six to twenty-four centigrammes, too small to produce the cathartic effects in any marked degree, a special action as a cholagogue. It is used in cases of supposed inaction of the liver, such as are frequently treated by mercurial cathartics. The officinal extract probably represents

the drug quite as well as the resin just mentioned. It may be associated in prescription with a little capsicum, extract of belladonna, or a drop or two of some volatile oil.

Dose.—Of the powder (seldom used), ten to twenty grains, sixty to one hundred and twenty centigrammes.

JALAPA.

JALAP.

Tuber Jalapæ, P. G.; *Radix Jalapæ—Jalap*, Fr.; *Jalape, Jalapenknollen*, G.

Jalap depends for its activity on two resins, of which the more abundant and more powerful is called convolvulin. It is very similar to another resin called jalapin, which is not found in jalap at all, but in scammony. This resin is dissolved in the bile and then becomes actively cathartic. Vomiting and colic may accompany its action. Both the root and its preparations are used in various conditions of constipation, but perhaps more than for any other purpose in the removal of dropsical effusions. The compound jalap powder is frequently used for this purpose. Like many other active purgatives, jalap may be used to complete the work of a vermicide, but is not one itself.

Dose.—Fifteen to twenty-three grains, one to one and a half gramme (1 to 1.5).

JUGLANS.

JUGLANS.

[Butternut.]

Écorce de Noyer Gris, Fr.; *Graue Wallnussrinde*, G.

This bark is not used in substance, but the extract is a mild cathartic, peculiarly fitted for the treatment of chronic constipation.

JUNIPERUS.

JUNIPER.

Fructus Juniperi, P. G.; *Baccæ Juniperi—Juniper Berries*, E.; *Genièvre, Fruit (Baies) de Genièvre*, Fr.; *Wachholderbeeren*, G.

These so-called berries contain a volatile oil, which is officinal, and which forms the basis of the preparations representing the drug. It is this which gives the peculiar flavor to Holland gin, often used in domestic practice for the same purposes as the officinal "spiritus juniperi," with which, however, it should not be confounded, as the latter is much

stronger, both in oil of juniper and in alcohol. "Spiritus juniperi compositus" is not very far from the strength of gin. Like other drugs of this class, juniper is slightly stimulating and more diuretic than most of them, resembling the kindred oil of turpentine in this respect as well as in producing at times irritation of the urinary passages. The oil is said to be efficient as a diuretic when given by inhalation. Juniper is more commonly given with other diuretics than alone. Half a pint, one-fourth of a litre, or more, of an infusion may be taken in the course of a day. The berries may be given in substance mixed with sugar, but the oil and its preparations are the more convenient.

Dose.—One to two drachms, four to eight grammes, three or four times a day.

KAMALA.

KAMALA.

[ROTTLERA, *Pharm.*, 1870.]

Contains some eighty per cent. of resin. The powder is used for the expulsion of intestinal worms, chiefly, though not exclusively, the tæniæ. It is said to produce its effects without severe action on the intestinal canal, although it is a purgative and may produce some nausea and griping. A tincture and extract have been used, but are not officinal. The dose may be repeated in six or eight hours if the first does not operate.

Dose.—One or two drachms, four to eight grammes, suspended in syrup.

KINO.

KINO.

Gummi (*s. Resina*) *Kino—Kino*, Fr., G.

Many other vegetable extracts besides that recognized by the Pharmacopœia have been used under the name of kino and have a similar action. Kino contains a peculiar tannin which receives the name of its source, and is closely allied to, but not identical with that of catechu. Kino is somewhat milder in its action than many other astringents, a difference which is supposed to depend upon a larger quantity of gum and pectin contained therein. This makes it more useful in some dyspeptic disorders, but in general its uses are identical with those of catechu and tannic acid, though locally it is not quite so powerful. It should not be prescribed with mineral acids, metallic salts, or strong solutions of alkaloids. An infusion of two drachms to eight ounces (about three per cent.) may

be given in doses of half an ounce to an ounce, thirty to sixty grammes. Aqueous preparations or even tinctures containing much water are apt to gelatinize on keeping.

Dose.—In powder, ten to twenty-two grains, sixty centigrammes to a gramme and a half (.60 to 1.50).

KRAMERIA.

KRAMERIA.

[RHATANY.]

Krameriæ Radix, Br.; *Radix Ratanhæ*, P. G.; *Radix Ratanhiæ—Rhatany Root*, E.; *Ratanhia*, Fr.; *Ratanhawurzel*, G.

This root contains a peculiar tannin and is used for the same purposes, and the same cautions should be observed as with kino, catechu, and tannic acid. It has been found very useful in fissure of the anus, but it is probable that the preference accorded it over many other astringents is largely of traditional origin. For this purpose enemata made with the extract or the tincture are frequently repeated. It is seldom used in substance.

LACTUCARIUM.

LACTUCARIUM.

Lactucarium, Fr.; *Giftlattichsaft, Lactucarium*, G.

A salad of garden lettuce is said to produce drowsiness. The value of lactucarium (or the juice of a peculiar variety of garden lettuce) as a medicinal agent is somewhat doubtful. In some cases the use of the drug would seem to favor sleep, especially in persons who believe in it, and it is a useful drug for cases where a powerful hypnotic must not be given, but something with a reputation is necessary.

Dose.—Eight to sixteen grains, or indefinite, half a gramme to one gramme.

LAPPA.

LAPPA.

[BURDOCK.]

Radix Bardanæ, P. G.; *Bardane*, Fr.; *Klettenwurzel*, G.

This has been a popular remedy in many conditions of ill-health and chronic disease where a diaphoretic and diuretic have been indicated, but it is doubtful whether the attributed medicinal virtues of this drug

do not belong to the stronger and better-known medicines which are usually combined with it, or to the volume of liquid which is used for its decoction. A tincture of the seed has recently been highly spoken of as a stomachic tonic and cure for psoriasis.

Dose.—Thirty to sixty grains, two to four grammes, in decoctum. A pint of the decoction may be taken per diem.

LAVANDULA.

LAVENDER.

Flores Lavandulæ, P. G.; *Flores Lavendulæ—Lavender Flowers*, E.; *Fleurs de Lavande*, Fr.; *Lavendelblüthen*, G.

These contain about one and a half per cent. of oil of lavender, which is used chiefly as a perfume and constituent of aromatic preparations.

LEPTANDRA.

LEPTANDRA.

[Culver's Root.]

Culver's Physic, Black Root, E.; *Racine de Leptandra, de Véronique de Virginie*, Fr.; *Leptandra-Wurzel*, G.

Leptandra is an irritant to the gastro-intestinal mucous membrane, and its use is followed either by catharsis or emeto-catharsis, according to the size of the dose given. This drug is often found in what are known as vegetable cathartic pills. The resin principle, called leptandrin, probably containing the true bitter glucoside leptandrin, produces the cathartic action of leptandra in doses of from two to four grains, thirteen to twenty-six centigrammes.

Dose.—Twenty to sixty grains, one and a half to four grammes.

LIMONIS CORTEX.

LEMON PEEL.

Cortex Fructus Citrici, P. G.; *Écorce de Citron*, Fr.; *Citronenschale, Limonenschale*, G.

Lemon peel is simply used as a flavoring to improve the taste of medicinal preparations.

LINIMENTUM AMMONIÆ.

AMMONIA LINIMENT.

Linimentum Ammoniatum, P. G.; *Linimentum Volatile, Linimentum Ammoniacale—Volatile Liniment*, E.; *Savon Ammoniacal*, Fr.; *Flüchtiges Liniment, Flüchtige Salbe*, G.

Ammonia liniment is used externally mainly for its rubefacient and stimulating properties and as a mild counter-irritant. If prevented from evaporating, the action will be more severe, and may even cause blistering. Its local application diminishes capillary engorgement and stimulates the capillary circulation of the skin.

LINIMENTUM BELLADONNÆ.

LINIMENT OF BELLADONNA.

This is a new liniment for the United States Pharmacopœia, and is used for muscular rheumatism, neuralgia, and other local pains. It is frequently combined with aconite fluid extract as a topical application in severe neuralgia.

LINIMENTUM CALCIS.

LIME LINIMENT.

Liniment ou Savon Calcaire, Fr.; *Kalkliniment*, G.

This is nearly the same with the well-known "carron oil," or "Stahl's burn salve," which was made with flaxseed oil. This liniment is used as a topical dressing for burns, the advantage of which is simply protection from the external air. It should be applied on cotton or lint. Other unirritating applications that do not become rancid, such as petrolatum, serve equally well.

LINIMENTUM CAMPHORÆ.

CAMPHOR LINIMENT.

Linimentum Camphoratum—Camphorated Oil, E.; *Liniment Camphrée, Huile Camphrée*, Fr.; *Kampferliniment*, G.

A convenient application, when friction is used, in the swelling of limbs from venous engorgement, or as a mild liniment in bruises or sprains.

LINIMENTUM CANTHARIDIS.

CANTHARIDES LINIMENT.

Huile de Cantharides Térébinthinée, Fr.; *Spanischfliegen Liniment*, G.

A severe and stimulating liniment, liable to cause vesication and sores difficult of healing, if its use is prolonged. It is not the most manageable preparation of cantharides for external use.

LINIMENTUM CHLOROFORMI.

CHLOROFORM LINIMENT.

This liniment produces a counter-irritant action, and probably a certain amount of local anæsthesia in the most superficial filaments of the nerves.

LINIMENTUM PLUMBI SUBACETATIS.

LINIMENT OF SUBACETATE OF LEAD.

Liniment Saturné, Beurre de Saturne, Baume Universelle, Fr.; *Bleiliniment*, G.

This liniment is used to allay itching or local pain caused by cutaneous inflammations, such as prurigo, chilblains, swollen glands, etc.

LINIMENTUM SAPONIS.

SOAP LINIMENT.

Linimentum Saponato-Camphoratum Liquid, P. G.; *Liquid Opodeldoc*, E.; *Liniment Savonneux Camphré*, Fr.; *Flüssiger Opodeldoc*, G.

A little more irritating and stimulant than linimentum camphoræ.

LINIMENTUM SINAPIS COMPOSITUM.

COMPOUND LINIMENT OF MUSTARD.

Liniment Sinapisé Composité, Fr.; *Zusammengesetztes Senfliniment*, G.

This is a recent addition to our Pharmacopœia, though it has been officinal in the British Pharmacopœia, the strength in which is the same as that in our present edition. The oil of mustard, of which this liniment is in part compounded, is a very active and rapid vesicant. The oil of mezereum is also a vesicant, but is slower in its action. This liniment should therefore be cautiously applied, if at all, where an active counter-irritant is required, as in pleuritic effusion, and not allowed to be so covered over with impervious cloths that its vesicating action cannot be watched and regulated. Its efficiency as a counter-irritant cannot be denied.

LINIMENTUM TEREBINTHINÆ.

TURPENTINE LINIMENT.

[KENTISH OINTMENT.]

Liniment Térébinthiné, Fr. ; *Terpentin-Liniment*, G.

This is an excellent rubefacient, and can be employed to stimulate activity in tissues whose vital properties are debased, as in burns or scalds, where moderate stimulation is desired. It also keeps flies off the wound. It should be applied on lint, and not come in contact with sound parts.

LINUM.

FLAXSEED.

[LINSEED.]

Semen Lini, P. G. ; *Lini Semina*, Br. ; *Linseed*, E. ; *Semence de Lin*, Fr. ; *Leinsamen, Flachssamen*, G.

These seeds contain, in the epithelium of the testa, mucilage, and in the embryo, oil. An infusion of the whole seeds, half an ounce to the pint (about three per cent.), is used as a demulcent, and may be flavored with a little lemon juice. Its usefulness in inflammations of the bladder and urinary passages, for which it is often given, must be limited to the water it contains, since the mucilage is not carried to the kidneys by the process of elimination or in any other way. The mucilage, which may be made for this purpose a little thicker than the infusion just spoken of, is a very useful local application in irritation of the vagina or rectum. The ground flaxseed is used to make poultices. The meal should be stirred up with hot water and placed between two cloths, of which that next the skin may be covered with oil or glycerine or petrolatum.

LIQUOR ACIDI ARSENIOSI.

SOLUTION OF ARSENIOUS ACID.

[LIQUOR ARSENICI CHLORIDI, *Pharm.*, 1870.]

Liquor Arsenici Hydrochloricus, Br. ; *Hydrochloric Solution of Arsenic*, E. ; *Liquor Arsenicale Hydrochlorique*, Fr. ; *Chlorarsenik-Lösung*, G.

This solution of arsenic, a little more than twice as strong as Valangin's, is supposed to have more irritant local effects upon the stomach than Fowler's solution, to which it corresponds in arsenical strength, but its general action is about the same. (See article Arsenious Acid.)

Dose.—Five drops in a wineglassful of water on a full stomach. This dose may be gradually increased, as in the case of other arsenical preparations.

LIQUOR AMMONII ACETATIS.

SOLUTION OF ACETATE OF AMMONIUM.

[SPIRIT OF MINDERERUS.]

Liquor Ammoniæ Acetatis, Br.; *Liquor Ammonii Acetici*, P. G.; *Acetas Ammonicus Liquidus, Spiritus Mindereri—Spirit of Mindererus*, E.; *Acetate d'Ammoniaque Liquide, Esprit de Mindererus*, Fr.; *Essigsaure Ammonium-Flüssigkeit*, G.

A diaphoretic, refrigerant, and diuretic. It is largely used in the earlier stages of inflammatory affections as a mild antipyretic, and later in febrile conditions, either alone or in conjunction with carbonate of ammonia, to increase the vigor of the heart's action. Its external application relieves slight inflammatory action, as, for instance, of the eyelids, and contusions of the surface. Its diuretic and diaphoretic properties after alcoholic debauch are well known, even to the laity, and, like other preparations of ammonia, it is used to produce a temporary stimulation and the appearance of sobriety in actual drunkenness.

Dose.—One-half to one and a half fluidounce, fifteen to forty-five grammes.

LIQUOR ARSENICI ET HYDRARGYRI IODIDI.

SOLUTION OF IODIDE OF ARSENIC AND MERCURY.

[LIQUOR ARSENICI ET HYDRARGYRI IODID, *U. S. P.*, 1870—DONOVAN'S SOLUTION.]

Solutio Donovani—Donovan's Solution, E.; *Soluté d'Iodo-Arsénite de Mercure, Liqueur de Donovan*, Fr.; *Jodquecksilber-Arsenik-Lösung, Donovansche Tropfen*, G.

As this solution contains one per cent. each of iodide of arsenic and of iodide of mercury, its local irritant action on the stomach is quite an important question in its use, and the mixture of iodides and mercury has a strong tendency to produce salivation. The chief indications for its use are in syphilis, obstinate skin diseases of a squamous character, and in such conditions of the system as are associated with a low order of tissue nutrition. Syphilographers of modern times have abandoned, in a great measure, this mercurial and arsenical compound, and seem to rely more especially upon a simple salt of mercury. It is somewhat doubtful if the arsenic gives any material assistance to the mercurial treatment, and it is apt to disturb the stomach if enough is prescribed to answer the supposed indications for mercurial saturation of the blood.

Dose.—Five drops, as in other preparations of arsenic, until the signs of either arsenical poisoning or mercurial salivation appear.

LIQUOR CALCIS.

SOLUTION OF LIME.

[Lime Water.]

Aqua Calcariæ, P. G. ; *Aqua Calcariæ Ustæ, Aqua Calcis, Calcaria Soluta, Oxydum Calcicum Aqua Solutum—Solution of Lime, Lime Water*, E. ; *Eau (Liquor) de Chaux*, Fr. ; *Kalkwasser*, G.

Lime water is alkaline in reaction and mildly astringent, but has no irritant action. When administered by the mouth a portion of the lime combines with the acid of the gastric juice and is absorbed, and eliminated by the urine, but without producing any marked change in that secretion. Its activity is mainly confined to the surfaces with which it comes in contact, drying them and diminishing their secretions. Hence it is used as a lotion in many mucous and purulent discharges, both of the skin and of the nose, fauces, vagina, rectum, or urethra. In the intestinal canal its effect is twofold, diminishing the acidity of the gastric contents and acting upon the mucous membrane as an astringent. Hence its usefulness in acid dyspepsia and diarrhœa. When given with milk and administered in small doses, the combination is one of the most useful means of checking vomiting and at the same time keeping up the nutrition. It is often borne when nothing else can be. The proportion of lime water may be as great as one-half, to be gradually diminished as the stomach regains its functions. This is, partly at least, due to the alkalinity of the lime making the coagulation of the milk slower, and consequently the curd less hard and cheesy.

The usefulness of lime water in the treatment of aphthæ depends upon the fact that the fungus which causes them needs an acid soil to grow upon, of which it is deprived by the lime. It has been shown that in the test-tube, lime water dissolves the false membranes of croup and diphtheria more rapidly than any other agents which can be employed without danger to the tissues. In order to apply this fact to the treatment of the disease, the lime water must be used not only as a lotion or gargle, but be applied almost constantly in the form of spray in order to reach sufficiently deep into the air-passages.

The method, in spite of its plausibility and the urgent demand for some agent which shall promote the removal or softening of the membrane, has not found great favor and is not a success, probably on account of the great difficulty in making the application strong enough and long enough to dissolve not only the first crop but its successive re-formations. The abundant slaking of lime in the apartment, although a very convenient method of generating watery vapor, and hence of great value as an adju-

vant, is *not an equivalent* of spraying, since no lime is diffused in the atmosphere thereby, unless the patient's head is held close enough over the vessel to receive such particles as may be carried upward mechanically by the violence of the ebullition.

Lime water may be used when it is desired to supply the want of that element in the system, but it is more common to use one of its salts, and especially the phosphate.

Dose.—Half an ounce to two ounces, fifteen to sixty cubic centimeters, as often as necessary; if mixed with milk it may be given almost *ad libitum*.

LIQUOR FERRI ACETATIS.

SOLUTION OF ACETATE OF IRON.

[Solution of Ferric Acetate.]

This is a recent addition to this, and does not exist in any other, Pharmacopœia. The advantage over other preparations of iron remains to be proved. Its action must be that of a stimulant ferruginous preparation, with very little, if any, astringent action. This liquor is for the preparation of the tincture of acetate of iron, which is officinal in the British Pharmacopœia, and has been added to the present edition.

LIQUOR FERRI CHLORIDI.

SOLUTION OF CHLORIDE OF IRON.

[Solution of Ferric Chloride.]

Liquor Ferri Perchloridi Fortior, Br.; *Liquor Ferri Sesquichlorati*, P. G.;; *Liquor Ferri Muriatici Oxydati, Ferrum Sesquichloratum Solutum*—*Solution of Ferric Chloride, Strong Solution of Perchloride of Iron*, E.;; *Solution de Perchlorure de Fer, Chlorure Ferrique Liquide*, Fr.; *Flüssiges Eisenchlorid*, G.

The local action of the solution is strongly astringent and styptic. It is used as a topical application or as a wash in contact with bleeding surfaces, or as spray in pulmonary hemorrhage. The injection of this solution, somewhat diluted, into the uterus to check hemorrhage, though an exceedingly efficient procedure, is not regarded as entirely safe. If the application is to be made, it is better done by swabbing than by injection. The solution is sometimes injected through the hollow needle into varicose veins and erectile tumors. The action is by the formation of clots, and the dangers consist in the risk of their dislodgement and decomposition. The injection into tumors about the face is also likely to produce

an amount of sloughing which may leave behind it unsightly scars. It is sometimes applied to congested or inflamed parts, as in erysipelas or gangrene.

There is no reason to suppose that its hemostatic action extends beyond the place at which it is applied, except so far as it, like other preparations of iron, improves the condition of the blood. It is not, however, a desirable form in which to administer iron internally, but it may be used in this way well diluted. The teeth should be protected by rinsing against the action of the acid.

Dose.—Two to ten minims, twelve to sixty-four centigrammes (.12 to .64), well diluted.

LIQUOR FERRI CITRATIS.

SOLUTION OF CITRATE OF IRON.

[Solution of Ferric Citrate.]

Liquor Ferri Citrici, Citras Ferricus Liquidus—Citrate de Fer Liquide, Fr.; *Flüssiges Eisencitrat*, G.

The citrate of iron is prepared by evaporating this solution to dryness, and the solution itself may be prescribed, but possesses no special advantages.

Dose.—Eight to fifteen minims, one-half to one cubic centimeter.

LIQUOR FERRI ET QUININÆ CITRATIS.

SOLUTION OF CITRATE OF IRON AND QUININE.

A convenient preparation in case the salt is desired in solution; but since one of its chief advantages is its slow (but perfect) solubility, and consequent tastelessness, the solution cannot be considered very important.

Dose.—Eight to fifteen minims, one-half to one cubic centimeter.

LIQUOR FERRI NITRATIS.

SOLUTION OF NITRATE OF IRON.

[Solution of Ferric Nitrate.]

Liquor Ferri Pernitratis, Br.; *Solution of Pernitrate of Iron*, E.; *Azotate de Fer Liquide*, Fr.; *Saltpetersaures Eisenoxyd-Lösung*, G.

This solution is less irritating than many of the other solutions of iron salts, as, for instance, the subsulphate, the chloride, etc., and more astringent than the organic iron salts, such as the citrate, the lactate, etc. Its

astringent properties are especially indicated in convalescence from diseases of the intestinal mucous membrane where gastro-intestinal digestion is feeble. It has been found useful in the summer diarrhœa of children. It may be applied to bleeding from a sensitive surface, in form of spray or by wash.

Dose.—Five to fifteen minims, thirty-two centigrammes to one gramme (.32 to 1), well diluted with water.

LIQUOR FERRI SUBSULPHATIS.

SOLUTION OF SUBSULPHATE OF IRON.

[SOLUTION OF BASIC FERRIC SULPHATE—MONSEL'S SOLUTION.]

Solution of Persulphate of Iron, E. ; *Liqueur Hémostatique de Monsel*, Fr. ; *Basischschewefelsaure Eisenoxydlösung, Monsels Eisenlösung*, G.

This is a valuable astringent and but little irritating solution, and its application is almost painless. Its uses are similar to those of the solution of the chloride. It should be applied on successive pieces of lint or cotton, not with a sponge. It is valuable in catarrhal inflammation of the mucous membrane of the fauces, and especially in tonsillitis follicularis. In some persons its contact with the fauces may provoke so much astringency that it may cause retching, unless the patient be first cautioned. This is a momentary sensation when the liquid is passing the fauces, and if it be well diluted it does not irritate the stomach nor provoke vomiting. The solution oxidizes rapidly on exposure to the air. It might be, and to a certain extent has been, used internally, though having no special advantages.

Dose.—Three to ten minims, eighteen to sixty-four centigrammes (.18 to .64), diluted with water.

LIQUOR FERRI TERSULPHATIS.

SOLUTION OF TERSULPHATE OF IRON.

[SOLUTION OF NORMAL FERRIC SULPHATE.]

Liquor Ferri Persulphatis, Br. ; *Liquor Ferri Sulfurici Oxydati*, P. G. ; *Solution of Persulphate of Iron*, E. ; *Persulfate de Fer Liquide*, Fr. ; *Flüssiges Schewefelsaures Eisenoxyd*, G.

This solution is more irritating to the mucous membrane than the preceding, and has less astringent properties, and is rarely used as a medicine. It is placed in the Pharmacopœia because its pharmaceutical use in other preparations is required.

LIQUOR GUTTA-PERCHÆ.

SOLUTION OF GUTTA-PERCHA.

Chloropercha; Liqueur de Gutta-Percha, Fr.; *Gutta-Percha Lösung*, G.

A convenient solution. The evaporation of chloroform leaves an adhesive, unirritating pellicle when applied to the skin. It is used as a protective to eruptions and slight wounds. It contracts less than collodion.

LIQUOR HYDRARGYRI NITRATIS.

SOLUTION OF NITRATE OF MERCURY.

[Solution of Mercuric Nitrate.]

Liquor Hydrargyri Nitratis Acidus, Br.; *Liquor Hydrargyri Nitrici Oxydati, Hydrargyrum Oxydatum Nitricum Solutum—Acid Solution of Nitrate of Mercury, Solution of Pernitrate of Mercury*, E.; *Deutoazotate de Mercure Liquide*, Fr.; *Flüssiges Saltpetersaures Quecksilberoxyd*, G.

An active but not very deep caustic, applied with a glass brush to ulcerations, malignant and otherwise. It may exceptionally give rise to the constitutional effects of mercury. It has been used, like other caustics, to produce a small slough on the apex of a boil or pustule.

LIQUOR IODI COMPOSITUS.

COMPOUND SOLUTION OF IODINE.

[Liquor Iodinii Compositus, *Pharm.*, 1870—Lugol's Solution.]

Liquor Iodi, Br.; *Solution of Iodine*, E.; *Solutè Iodurè de Lugol*, Fr.; *Lugolsche Iodlösung*, G.

A very strong aqueous preparation of iodine, for the physiological and therapeutical action of which see Iodine.

Dose.—Two to six minims, twelve to thirty-eight centigrammes (.12 to .38), diluted with water.

LIQUOR MAGNESII CITRATIS.

SOLUTION OF CITRATE OF MAGNESIUM.

Liquor Magnesiæ Citratis, Br.; *Liquor Magnesii Citrici—Limonade au Citrate de Magnésie, Limonade Purgative Citro-Magnésienne*, Fr.; *Flüssige Citronsaure Magnesia*, G.

An excellent and agreeable effervescent saline cathartic; but it should be noted that for the sake of economy some of the preparations of the market have been made with tartaric instead of citric acid.

Dose.—Four to six fluid ounces, one hundred and twenty to one hundred and eighty cubic centimeters, as a laxative; for a purgative effect, repeat the same dose in an hour; or, as a purgative, six to twelve fluid ounces, one hundred and eighty to three hundred and sixty cubic centimeters, in one dose.

A bottle of this solution is supposed to hold twelve fluidounces, or three hundred and sixty cubic centimeters.

LIQUOR PEPSINI.

SOLUTION OF PEPSIN.

[Liquid Pepsin.]

A digestive ferment, the activity of which depends upon the quality of pepsin, and the permanency of its solution without decomposition. The addition of hydrochloric acid is of great importance and approximates the solution to the gastric juice. (For the action of pepsin, see that article.)

Dose.—Two to four fluidrachms, eight to sixteen cubic centimeters, administered after meals.

LIQUOR PLUMBI SUBACETATIS.

SOLUTION OF SUBACETATE OF LEAD.

Liquor Plumbici Subacetici, P. G.; *Acetum Plumbicum, Acetum Saturni, Plumbum Hydrico-Aceticum Solutum, Subacetas Plumbicus Liquidus—Goulard's Extract*, E.; *Sous-Acetate de Plomb Liquide, Extrait de Goulard, Vinaigre de Plomb*, Fr.; *Bleiessig*, G.

This preparation is never used internally. Its local application on absorbent cotton or on spongio-piline soothes hyperæmia of the skin and its consequent pain, dries off ichorous secretions, and leaves the cuticle shrivelled; but if the skin be denuded, saturnine absorption may follow its prolonged use. A preparation of glycerole of subacetate of lead has been made, and has some favor among dermatologists.

LIQUOR PLUMBI SUBACETATIS DILUTUS.

DILUTED SOLUTION OF SUBACETATE OF LEAD.

Aqua Plumbi, P. G.; *Aqua Plumbica vel Saturnina—Lead Water*, E.; *Eau de Saturne, Eau Blanche*, Fr.; *Bleiwasser, Kühlwasser*, G.

A diluted preparation of the preceding, used as a lotion. A mild astringent when applied externally, though the dressing should be impervious to the air. It also acts topically as a desiccant in moist eruptions of the skin. Its local action is soothing and refrigerating.

LIQUOR POTASSÆ.

SOLUTION OF POTASSA.

Liquor Kali Caustici, P. G. ; *Kali Hydricum Solutum, Lixivium Causticum—Solution of Potash*, E. ; *Potasse Caustique Liquide, Lessive Caustique*, Fr. ; *Aetzkalilauge, Kalilauge*, G.

Liquor potassæ is strongly alkaline and caustic. Externally applied, even in considerable dilution, it rapidly softens the epithelium and unites with the oily secretion. Internally it neutralizes the acids in the stomach, is rapidly absorbed, and exists in the blood chiefly in the form of carbonate. The urine, if the dose be sufficient, is rendered alkaline thereby. The blood, if the alkali be continued too long, becomes disorganized and the patient anæmic. This solution is used externally, more or less diluted (from forty per cent. up to full strength). If a stronger solution still be desired, it must be specially made by dissolving Potassa in water. It allays the itching in cutaneous diseases, and also removes dried secretions and débris. It has been added to lime water for use as a spray in diphtheria. Internally liquor potassæ may be given, largely diluted, to neutralize acid in the stomach or in the blood ; but there is no indication for its use in the stomach which may not be better fulfilled by the hydrate of magnesia, the carbonates of the alkalies, or the alkaline salts of the fruit acids, *i.e.*, the acetates, citrates, tartrates, malates, etc., of potassium or sodium. The carbonates neutralize gastric acidity equally well with the solution of potassa, and, without the risk of caustic action, can be given in the necessary doses ; while the fruit salts just referred to, becoming bicarbonates in the blood, answer the same therapeutic purpose as if the dose put into the stomach had been either a hydrate or carbonate.

Dose.—Ten minims to a fluidrachm, sixty-four centigrammes to four cubic centimeters (.64 to 4), largely diluted with syrup. This solution should not be prescribed with vegetable extracts, as it destroys their efficiency.

LIQUOR POTASSII ARSENITIS.

SOLUTION OF ARSENITE OF POTASSIUM.

[Fowler's Solution.]

Liquor Arsenicalis, Br. ; *Liquor Kali Arsenicosi*, P. G. ; *Solutio Arsenicalis Fowleri, Kali Arsenicosum Solutum, Arsenical or Fowler's Solution*, E. ; *Liqueur Arsenicale de Fowler*, Fr. ; *Fowler'sche Tropfen*, G.

The lavender is added to this solution merely to distinguish it by color and taste.

This one per cent. solution of arsenic is an irritant poison if given in

large doses, and possesses all the medicinal virtues of Arsenious Acid, for which see that article. It is the most usual, and, for all practical purposes the only essential, liquid preparation of arsenic.

Dose.—Three to five drops, eighteen to thirty-two centigrammes (.18 to .32), largely diluted, given on a full stomach, and cautiously increased as the digestive tract becomes gradually used to its stimulating properties.

LIQUOR POTASSI CITRATIS.

SOLUTION OF CITRATE OF POTASSIUM.

Liquor Kali Citrici—Citrate de Potasse Liquide, Fr. ; *Flüssiges Citronsaures Kali*, G.

The citrate of potassa is antacid and slightly diuretic and diaphoretic. The carbonic acid contained in the solution acts as an anæsthetic to the stomach, and hence the mixture is useful in slight febrile conditions accompanied by nausea or vomiting. If a larger quantity of carbonic acid is desired, the "mistura potassæ citratis" may be taken, freshly prepared and before effervescence has ceased, or the "soda water" of the shops, "aqua acidi carbonici," is available.

Dose.—A tablespoonful, twenty cubic centimeters, every hour or two.

LIQUOR SODÆ.

SOLUTION OF SODA.

Liquor Natri Caustici, P. G. ; *Natrum Hydricum Solutum, Soude Caustique Liquide*, Fr. ; *Aetznatronlauge*, G.

Though this is an antacid solution (*vide* Liquor Potassæ), its use is chiefly pharmaceutical and chemical. It may be used in Trommer's test for sugar.

Dose.—Five to twenty minims, thirty-two to one hundred and twenty centigrammes, largely diluted with water and used cautiously.

LIQUOR SODÆ CHLORATÆ.

SOLUTION OF CHLORINATED SODA.

[Liquor Sodæ Chlorinatæ, *U. S. P.*, 1870—Labarraque's Solution.]

Liquor Natri Chlorati, P. G. ; *Liquor Natri Hypochlorosi*, E. ; *Chlorure de Soude Liquide, Liqueur de Labarraque*, Fr. ; *Chlornatronlösung, Bleichflüssigkeit*, G.

The free chlorine in this solution makes a slight caustic antiseptic for topical use, and may also excite a healthy action in an indolent or slough-

ing sore. It is also useful, diluted eight or ten times, as a gargle, or for use as an injection or douche in the vagina or rectum. Where carbolic acid cannot be used this makes a convenient substitute. It has been administered internally, but can only be useful in fetid or cancerous conditions of the stomachal walls. In typhoid affections its theoretical advantages have not been realized in practice. The amount of chlorine given off, or "available chlorine," is greatly increased by the addition of hydrochloric acid.

Dose.—Thirty to sixty minims, eighteen to thirty-seven centigrammes (.18 to .37), as a solution in twenty parts (five per cent.) of water or mucilaginous drinks.

LIQUOR SODII ARSENIATIS.

SOLUTION OF ARSENIATE OF SODIUM.

Liquor Sodæ Arseniatis, Br.; *Solution of Arseniate of Soda*, E.; *Liqueur d'Arseniate de Soude*, Fr.; *Arsensaure Natronlösung*, G.

The action of this solution is that of the arsenite of sodium (which see), and practically the same as that of liquor potassii arsenitis.

Dose.—Three to five minims, eighteen to thirty centigrammes (.18 to .30), in a large amount of water.

LIQUOR SODII SILICATIS.

SOLUTION OF SILICATE OF SODIUM.

Soluble Glass, E.; *Silicate de Soude, Verre Soluble*, Fr.; *Wasserglas*, G.

This solution is used on cloth to make bandages stiff and unyielding, being very much lighter than plaster-of-Paris and stronger than a starched bandage of the same weight and thickness. It is best to apply a surgical bandage to the limb first, then to envelop this completely with cotton wadding, and then apply the bandages soaked in the solution, or to paint them with the solution after their application. The limb must be kept perfectly still for two hours or more, until the surface has become stiff and unyielding.

LIQUOR ZINCI CHLORIDI.

SOLUTION OF CHLORIDE OF ZINC.

Chlorure de Zinc Liquide, Solution de Burnett, Fr.; *Flüssiges Chlorzink*, G.

The use of this solution is the disinfection of sinks, drains, etc., and it has but little value in medicine, strictly speaking. It has, however,

been used largely (one-half to one per cent.) diluted as an injection or lotion in gonorrhœa, leucorrhœa, and ophthalmia. It is useful for some anatomical purposes, as the preservation of the brain, but is injurious to steel instruments. Some serious and fatal accidents have followed its accidental internal use, the symptoms being those due to a corrosive and irritant poison, the antidote to which should be soapy water, oily and demulcent drinks.

LITHII BENZOAS.

BENZOATE OF LITHIUM.

This salt is a new introduction to the Pharmacopœia, and not of long use in medicine. It is intended for use in gout and the uric acid diathesis, on the ground that the well-known transformation of benzoic into hippuric acid (see p. 8), takes place at the expense of nitrogenous material which would otherwise become uric acid, thus rendering benzoic acid as useful, though for other reasons, in the uric as in the phosphatic diathesis. Besides this, the lithia forming the most soluble known urate, will neutralize such uric acid as may be formed. The salt possesses the advantage over the acid alone that it is better borne by the stomach, if it is necessary that it be administered for a long time. Iron may be advantageously added in prescription to neutralize the anemiating effect of a prolonged alkaline treatment. It might also be used for antiseptic purposes like other benzoates.

Dose.—Eight to thirty grains, one-half to two grammes in solution or in wafers.

LITHII BROMIDUM.

BROMIDE OF LITHIUM.

Bromure de Lithium, Fr.; *Bromlithium*, G.

This salt contains a larger proportion of bromine than any other bromine compound used in medicine, except hydrobromic acid. It produces the action of these in some few instances in which the corresponding potash salt is not well borne or is inefficient, but in the vast majority of cases possesses no advantages over it. The sleep is more rapid and profound. It produces the usual bromic acne. An objection to it, as to all lithia salts, is its costliness.

Dose.—Ten to twenty grains, sixty to one hundred and twenty centigrammes (.60 to 1.20), three times in the day. As a hypnotic the doses may be accumulated toward the latter part of the day.

LITHII CARBONAS.

CARBONATE OF LITHIUM.

Lithiæ Carbonas, Br.; *Lithium Carbonicum*, P. G.; *Carbonas Lithicus—Carbonate of Lithia*, E.; *Carbonate de Lithine, Carbonate Lithique*, Fr.; *Kohlensaures Lithion*, G.

Dissolves in water in but small quantity, although this is sufficient to impart an alkaline reaction and taste. This salt is an antacid in the stomach, although in this respect it possesses no advantage over the carbonates of soda and magnesia. Like the next preparation, it is a powerful diuretic, and has a special relation to uric acid, with which it forms soluble salts. It is better for prescription in the solid form than the citrate, but the latter is preferable for use in solution. Lithia is found in small quantities in many mineral springs, to which special efficacy has been attributed in the uric acid diathesis; but it would be difficult to separate the effects of the very small amount of lithia in these cases from that of the much larger quantity of soda and potash which usually accompanies it. The names of some of these springs are given below, with the number of grains of carbonate of lithia to the pint. The reader can judge by comparing the figures in each case, with the doses usually given, how great the physiological effect of any reasonable quantity of the water would be. The water of the foreign springs is imported in bottles. Karlsbad, Bohemia, 01; Marienbad, Bohemia, .009 to .080; Weilbach, Nassau, .045; Aix-la-Chapelle, Belgium, .002; Contrexeville, France, .009; Fachingen, Nassau, .0006; Vals, France, traces; Gettysburg, Pa. (?); many of the Saratoga Springs, .03 to .744; Buffalo Springs, Mecklenburg County, Va., .185; Whitehall, N. Y., .023; Ballston, N. Y. (?); Capon Springs, W. Va., trace.

Dose.—Of carbonate of lithia, two to eight grains, twelve to fifty centigrammes (.12 to .50), in solution in hot water, or in wafer, preceded or followed by a draught of water or carbonic acid water.

LITHII CITRAS.

CITRATE OF LITHIUM.

Lithiæ Citras, Br.; *Lithium Citricum—Citrate of Lithia*, E.; *Citrate de Lithine*, Fr.; *Citronensaures Lithion*, G.

The citrate has the same general effect as the carbonate, but may be preferable on account of its greater solubility. A few sufficient doses of the solution will usually relieve the irritation caused by too concentrated

or acid urine and the deposit of crystals of free acid in the form of "gravel."

The non-officinal effervescing citrate is an agreeable method of administration, though the dosage is less accurate.

Dose.—Three to fifteen grains, eighteen centigrammes to a gramme (.18 to 1), every two to four hours.

LITHII SALICYLAS.

SALICYLATE OF LITHIA.

This salt will undoubtedly give the usual constitutional effects of salicylic acid without the irritant ones which occasionally arise, resembling in this respect the salicylate of sodium. The advantage of the lithia base must consist in the expectation that it will act toward uric acid in the manner described above. It will undoubtedly be equally useful with salicylate of sodium in acute rheumatism and in the reduction of pyrexia, and it may possess advantages in gout and rheumatic gout, which, however, have not yet been made manifest. It would probably have a similar action to benzoate of lithia in the bladder.

Dose.—Six to fifteen grains, sixty centigrammes to a gramme (.6 to 1), in solution, flavored and sweetened; to be repeated, in case of acute rheumatism, every one, two, or three hours, until characteristic effects are produced.

LOBELIA.

LOBELIA.

Herba Lobeliæ, P. G.; *Indian Tobacco*, E.; *Herbe de Lobélie Enflée*, Fr.; *Lobelienkraut*, G.

This herb contains an alkaloid which is itself liquid, but forms crystallizable salts with many acids. The drug closely resembles tobacco in its action when taken internally, producing severe nausea with great depression, general muscular relaxation, feeble and irregular and slow pulse, prostration, convulsions, and insensibility. It figured largely in the so-called Thomsonian system with many fatal results. In poisoning, the stomach should be washed out with a solution of tannic acid, which forms with lobelia an insoluble precipitate, and the subsequent symptoms treated by stimulation. At present this dangerous remedy is little used, except in asthma, either idiopathic or symptomatic, the spasmodic element in which it seems to relieve, probably by the action on the general muscular system noted above. It has been considered of value in whooping-cough and spasmodic laryngitis, and has been used to relieve other forms of

spasm, although there are few circumstances under which a preferable substitute cannot be found.

Dose.—As an emetic, ten to twenty grains, thirty to one hundred and thirty centigrammes (.30 to 1.30); as an expectorant, one to five grains, six to thirty centigrammes (.06 to .30). The wine and vinegar are much more frequently employed.

LUPULINUM.

LUPULIN.

Glandulæ Lupuli, P. G.; *Lupuline, Lupulite*, Fr.; *Hopfenmehl, Lupulin*, G.

This is derived from humulus, containing a much larger proportion of the active principles, and the action can be learned by reference to that article (p. 146).

Dose.—Five to twenty grains or more, thirty to one hundred and thirty centigrammes, in syrup. If number and bulk of pills be not objected to, they can easily be made by rubbing the lupulin in a warmed mortar.

LYCOPODIUM.

LYCOPODIUM.

Semen Lycopodii, Pulvis Lycopodii, Sulphur Vegetabile—Lycopode, Soufre Végétal, Fr.; *Bärlappsamen, Streupulver, Hexenmehl*, G.

A light powder used for dusting over raw surfaces to protect them from the air and from friction. Its chief use is to envelop manufactured pills to prevent their adhesion to each other.

MACIS.

MACE.

Arillus Myristicæ—Macis, Fr., G.; *Fleur de Muscade*, Fr.; *Muskatblüthe*, G.

An aromatic used in combination with other medicinal substances, or as a condiment. As it contains the same volatile oil with nutmeg, it is supposed, like that spice, to have a narcotic action, though no actual instance has been recorded.

MAGNESIA.

MAGNESIA.

[Light Magnesia.]

Magnesia Usta, P. G.; *Magnesia Calcinata—Calcined Magnesia*, E.; *Magnésie, Magnésie Calcinée*, Fr.; *Gebrannte Magnesia*, G.

MAGNESIA PONDEROSA.

HEAVY MAGNESIA.

These two preparations differ in no respect, except density, the latter being more easily miscible with water than the former. A solution of magnesia in carbonic acid water is sometimes used under the name of "fluid magnesia." Magnesia is an antacid, neutralizing in the stomach the natural acid (hydrochloric), and also the products of fermentation (lactic, butyric). A small quantity followed by a little lemon juice, or made soluble, as usually happens, in the stomach, becomes mildly laxative. If not acidified it may give rise to intestinal concretions, of which, though rare, several instances have been recorded. The earthy hydrates (lime and magnesia) are of less value in acidifying the urine than the alkaline carbonates and salts of the fruit acids.

Magnesia is used in heartburn and acidity, and as a laxative often combined with rhubarb. It is an antidote to arsenic next in value to oxide of iron. It is combined with this oxide as an antidote in an officinal formula (see p. 133). It may also be used in acid or phosphorus poisoning.

Dose.—Purgative, forty-five grains, three grammes, mixed with water. Lemon-juice will make it more rapidly soluble. As an antacid, five to ten grains, thirty to sixty centigrammes (.30 to .60), as the symptoms arise.

MAGNESII CARBONAS.

CARBONATE OF MAGNESIUM.

Magnesiæ Carbonas, Br. ; *Magnesia Carbonica*, P. G. ; *Magnesia Alba, Magnesia Hydrico-Carbonica, Carbonas Magnesicus—Carbonate of Magnesia*, E. ; *Carbonate de Magnésie, Magnésie Blanche*, Fr. ; *Weisse Magnesia*, G.

The action and uses of this preparation are the same as those of magnesia, except that if it meets with much acid in the stomach, carbonic acid gas is disengaged and makes its appearance as eructations.

Dose.—As for magnesia.

MAGNESII CITRAS GRANULATUS.

GRANULATED CITRATE OF MAGNESIUM.

A recent introduction to the Pharmacopœia, although it has been in popular use for some time. It is an agreeable laxative, and corresponds nearly in the solid form to the liquor magnesii citratis.

Dose.—Two drachms to an ounce, eight to thirty grammes.

MAGNESII SULPHAS.

SULPHATE OF MAGNESIA.

[Epsom Salts.]

Magnesiæ Sulphas, Br.; *Magnesia Sulfurica*, P. G.; *Sal Amarum, Sal Epsomense, Sal Anglicum, Sal Sedlicense, Sulfas Magnesicus, etc.*, E.; *Sulfate de Magnésie, Sel d'Epsom, Sel de Sedlitz, Sel Amer*, Fr.; *Bittersaltz, Schwefelsaure Magnesia*, G.

This is one of the most active saline cathartics, producing in full doses prompt and free watery discharges without much griping or irritation, but often with a feeling of coldness and depression. Smaller doses produce less marked effects, and are to some extent absorbed and eliminated by the urine, so that an amount which, given at once would be actively cathartic, if divided may produce no intestinal discharge, but an increased flow of urine. Sulphate of magnesia, like other salines, acts more freely when given in a large quantity of water. Cases have been described where a large dose in a very little water has been followed by no intestinal discharge, but by general depression, syncope, and in one case death. For use in cases of fecal accumulation, where a chance of organic obstruction exists, the sulphate of magnesia in moderate repeated doses is much preferable to the more violent cathartics, since it carries down with it much water to promote the breaking up of the mass, but if not successful is absorbed and carried away harmlessly by the urine. As a remedy for ordinary constipation, large doses should not be frequently employed, as they leave the bowels as inactive as they were before; but a small dose in considerable water, before breakfast, does not lose its effect so rapidly, and may be considered a coarse substitute for a mineral water. In dysentery this salt may be used in two ways; first as a full dose early in the disease, and later in small doses combined with an opiate. If desirable to use cathartics in febrile conditions, this is certainly one of the most efficient, but in most cases the more agreeable citrate will be preferred. In painter's colic, sulphate of magnesia possesses the advantage, when used for the cathartic effect so necessary in this affection, that it neutralizes any lead which may remain in the intestinal canal. In prescription the sulphate of magnesia is frequently joined with senna, as in the "compound infusion of senna." Its taste may be partly disguised by aromatics, sulphuric acid, or other flavors, and the cold feeling may be partly corrected by a little tincture of ginger; but with all improvements it still remains "bitter salt." Many mineral waters owe a part of their efficacy to this and other salts of magnesia.

Dose.—As a purgative, one-half to one ounce, fifteen to thirty grammes.

MAGNESII SULPHIS.

SULPHITE OF MAGNESIA.

This salt has the same action, uses, and doses as the other sulphites. It may be used as an internal antiseptic in zymotic diseases in the dose of from fifteen to sixty grains, one to four grammes, dissolved in water sweetened and flavored.

MAGNOLIA.

MAGNOLIA.

Écorce de Magnolier, Fr.; *Magnolia Rinde*, G.

This bark has, when used with a sufficient quantity of warm water, the diaphoretic properties belonging to other aromatics. Like other bitters, it has been employed in the treatment of intermittent fever.

Dose.—Thirty to sixty grains, two to four grammes. The infusion and decoction may be used.

MALTUM.

MALT.

Malt d'Orge, Drêche, Fr.; *Gerskumals*, G.

In the germination of malt the starch of the grain is transformed into glucose by a peculiar ferment, diastase, closely allied to, if not identical with, the ferment of the saliva, ptyalin. The glucose and the diastase are the most important constituents of "extractum malti." A completely dried and powdered extract corresponds essentially to various unofficinal preparations, known as "dry extract of malt," "maltine," Horlick's and Mellin's foods. Hoff's malt extract contains alcohol, and may be looked upon as a concentrated beer. If an infusion of the malt is allowed to ferment, it develops alcohol, and becomes, after various manipulations and additions, chiefly of hops, beer and ale. Distillation and re-distillation of a fermented mixture of malt gives whiskey. Malt itself is only used as the source of these various products.

MANGANI OXIDUM NIGRUM.

BLACK OXIDE OF MANGANESE.

[Dioxide of Manganese.]

Manganum Hyperoxydatum, P. G.; *Oxydum Manganicum, Manganesium Vitriolatum (vel Nigrum)—Peroxide of Manganese, Pyrolusite*, E.; *Oxyde (Peroxyde) de Manganèse*, Fr.; *Braunstein*, G.

The uses of this drug are chiefly pharmaceutical, as in the manufacture of chlorine and oxygen, but it has been given in painful affections of the stomach, where it probably acts simply as an inert sheathing powder, like bismuth. Preparations of manganese have been used in medicine as a substitute for, or addition to, iron, on the ground of its chemical resemblance thereto; and because minute quantities of manganese had been

found in the blood, a purely hypothetical "manganic anæmia" was supposed to be relieved by it.

Dose.—Five to forty-five grains, twenty centigrammes to three grammes (.20 to 3).

MANGANI SULPHAS.

SULPHATE OF MANGANESE.

Manganum Sulphuricum, Sulfas Manganosus—Manganous Sulphate, E.; *Sulfate de Manganèse, Sulfate Manganeux,* Fr.; *Schwefelsaures Manganoxydul,* G.

This being a soluble preparation may produce the poisonous effects of the metal, which are gastro-enteritis, exhaustion, cardiac paralysis, and death. It has been used as a purgative, but has more disadvantages than the reverse for this purpose. If any one wishes to treat anæmia by manganese, this salt may be used in the **Dose** of five grains, twenty-four centigrammes (.24). There are several non-officinal preparations.

MANNA.

MANNA.

Manne, Fr.; *Manna,* G.

This contains seventy or eighty per cent. of a sweet substance called manna-sugar, or mannite, chemically allied to the alcohols and to glycerine. Manna is a slow and gentle laxative, with, however, some tendency to produce colic and flatulence. It is often associated with senna, salines, and other cathartics, but also given alone to pregnant women and children, partly on account of the gentleness of its action, and partly on account of its not disagreeable taste.

Dose.—One to two ounces, thirty to sixty grammes. If of the best quality, it may be eaten; or an infusion may be made.

MARRUBIUM.

MARRUBIUM.

[Horehound.]

Herba Marrubii—Hoarhound, E.; *Herbe de Marrube Blanc,* Fr.; *Andornkraut, Weisser Andorn,* G.

Contains a resin, volatile oil, and bitter principle. Used generally in catarrhal conditions of the air-tubes and stomach, over which it seems to produce a soothing effect. It may be administered in powder or decoction, or the expressed juice of the fresh herb. It is used in confectionery.

Dose.—Thirty to sixty grains, two to four grammes.

MASSA COPAIBÆ.

MASS OF COPAIBA.

[PILULÆ COPAIBÆ, 1870.]

See article Copaiba (p. 90) for its therapeutical uses. The copaiba resin makes a solid and insoluble mass with the magnesia.

Dose.—Eight to forty grains, one-half to two and a half grammes.

MASSA FERRI CARBONATIS.

MASS OF CARBONATE OF IRON.

[PILULA FERRI CARBONATIS, 1870.]

Pilulæ Ferri Carbonici, P. G.; *Pilulæ Ferratæ Valleti—Vallet's Pill Mass*, E.; *Pilules de Carbonate Ferreux, Pilules Ferrugineuses*, Fr.; *Vallet'sche Pillen*, G.

Vallet's pills are prepared with sugar (or with cinnamon, marshmallow, or liquorice in other pharmacopœias), to prevent oxidation of the carbonate, and contain forty-two parts in a hundred of ferrous carbonate. This pill acts as a gentle, unirritating, non-astringent, ferruginous tonic, and hence, like other such salts of iron, favors food digestion and absorption. Blaud's pills closely resemble this mass in constitution. (See article on Ferrum, p. 125.)

Dose.—Three to five grains, eighteen to thirty-two centigrammes (.18 to .32), after meals.

MASSA HYDRARGYRI.

MASS OF MERCURY.

[PILULÆ HYDRARGYRI, 1870—BLUE MASS—BLUE PILL.]

Pilulæ Cæruleæ, E.; *Pilule de Mercure*, Fr.; *Mercurial Pillen*, G.

For medicinal action of mercury see article Hydrargyrum (p. 152). A gentle cathartic, supposed to be peculiarly adapted to cases of "sluggish liver." Blue pill, when administered as a laxative, should always be followed up with a dose of castor-oil or Rochelle salts, or some other mild aperient, as the beneficial action in relieving hepatic engorgement is thus much more readily effected. The smaller doses are used to produce the specific effects of mercury.

Dose.—As a laxative, ten grains, sixty-five centigrammes. To produce the specific action, two or three grains two or three times a day, or smaller doses at shorter intervals, guarded, if necessary, by a little opium.

MASTICHE.

MASTIC.

Mastix, P. G.; *Resina Mastiche—Mastich*, E.; *Mastic*, Fr.; *Mastix*, G.

This resin dissolved in alcohol or ether is sometimes used on cotton as a protective varnish for caries of the teeth, but is inferior to sandarac, used for the same purpose. It is rarely, if ever, used alone as an internal remedy, but is an ingredient of pilula aloes et mastiches.

MATICO.

MATICO.

Maticæ Folia, Br.—*Feuilles de Matico*, Fr.; *Maticoblätter*, G.

Matico contains volatile oil, a resin, a crystallizable acid, and tannin. It is allied both chemically and therapeutically to cubebs and copaiba. It has been used as a hemostatic in hemorrhages from various internal organs, and also topically. It acts as a sort of special stimulant in chronic discharges from mucous membranes, especially the genito-urinary.

Dose.—One-half drachm to two or three drachms, two to eight or twelve grammes several times a day.

MATRICARIA.

MATRICARIA.

[German Chamomile.]

Flores Chamomillæ Vulgaris, P. G.; *Fleurs de Camomille Commune (d'Allemagne)*, Fr.; *Kamille, Kamillenblumen*, G.

Somewhat aromatic and a stomachic bitter.

Dose.—May be used almost *ad libitum* as a decoction or infusion, or the flowers themselves be eaten.

MEL.

HONEY.

Miel, Fr.; *Honig*, G.

Honey consists chiefly of several kinds of sugar, the fresh containing cane sugar, which changes to glucose and levulose. Flavoring matters are also present. With most persons honey is simply an agreeable article of diet, while in many it gives rise to some dyspeptic symptoms, such as pyrosis and flatulence, or ever colicky pains and slight diarrhœa. Besides

this, some persons have a peculiar susceptibility to honey, like that of others to fish or strawberries, etc., so that it brings out an eruption of urticaria. Sometimes the honey becomes actually poisonous from the bees feeding on certain plants, said in this country to be chiefly kalmia latifolia (mountain laurel). It is used as an article of diet.

MEL DESPUMATUM.

CLARIFIED HONEY.

Mel Depuratum, Br., P. G. ; *Miel Despumé, Mellite Simple*, Fr. ; *Gereinigter Honig*, G.

This is used as a vehicle for some medicines, chiefly for local application in the mouth.

MEL ROSÆ.

HONEY OF ROSE.

This preparation, which is used either alone or with some more active drug, as a local application, has an agreeable flavor and astringency derived from the red rose.

MELISSA.

MELISSA.

[Balm.]

Folia Melissæ, P. G. ; *Herba Melissæ—Lemon Balm*, E. ; *Mélisse, Celine, Herbe au Citron*, Fr. ; *Melissenblätter, Citronenkraut*, G.

Contains a small quantity of a fragrant volatile oil, to which it owes such mild virtues as it possesses. An infusion can be used simply as a beverage, or for its slight diaphoretic effect.

MENISPERMUM.

MENISPERMUM.

[Canadian Moonseed.]

The root of this plant, belonging to the same family with columbo, contains a small quantity of berberina and a colorless alkaloid. It is a bitter, and has had bestowed upon it a reputation, yet to be justified, of many virtues, especially alterative. There are no officinal preparations.

Dose.—An infusion of five to twenty grains, thirty to one hundred and thirty centigrammes (.30 to 1.30), might be used.

MENTHA PIPERITA.

PEPPERMINT.

Folia (*Herba*) *Menthæ Piperitæ*, P. G.; *Menthe Poivrée*, Fr.; *Pfefferminze*, G.

This plant possesses a pungent, aromatic, and agreeable flavor, due to a volatile oil, which is officinal. It is used to relieve nausea, flatulence, and slight abdominal pains. Its cooling and moistening effect in the mouth are often of service when it is not desirable to give much water to drink. An infusion may be used, but preparations of the oil are usually, as a matter of convenience, preferred.

MENTHA VIRIDIS.

SPEARMINT.

Herba Menthæ Acutæ (*vel Romanæ*)—*Menthe Verte, Menthe Romaine, Baume Vert*, Fr.; *Grüne Minze, Romische Minze*, G.

Has essentially the same properties as peppermint, but less powerful.

MEZEREUM.

MEZEREUM.

Mezerei Cortex, Br.; *Cortex Thymeleæ vel Coccognidii—Mezereon Bark*, E.; *Écorce de Mézéréon, de Garou, de Lauréole, de Thymélée*, Fr.; *Seidelbastrinde, Kellerhalsrinde*, G.

Contains an acrid resin. It is a gastro-intestinal irritant, and cutaneous vesicant, rarely, if ever, used internally as a medicine, except as a component of sarsaparilla officinal preparations. Its external use as a cutaneous irritant and vesicant is more convenient in the compound mustard liniment than when used alone. The bark, moistened, may be bound upon the skin, where it produces redness, vesication, and ultimately ulcers.

MISTURA AMMONIACI.

AMMONIAC MIXTURE.

Emulsio vel Lac Ammoniaci, Ammoniacum Mixture—Milk of Ammoniac, E.; *Mixture de Gomme Ammoniaque, Lait Ammoniacal*, Fr.; *Ammoniak Emulsion*, G.

An expectorant and stimulant, used in catarrhal affections, especially of the bronchi, and in asthma.

Dose.—One-half a tablespoonful or more.

MISTURA AMYGDALÆ.

ALMOND MIXTURE.

Emulsio Amygdalæ vel Simplex—Milk of Almonds, E.; *Emulsion Simple, Lait d'Amandes*, Fr.; *Mandelemulsion, Mandelmilch*, G.

A demulcent drink, useful in catarrhal affections and as a vehicle for cough mixtures.

Dose.—Half a tablespoonful or more.

MISTURA ASAFŒTIDA.

ASAFETIDA MIXTURE.

Milk of Asafetida, E.; *Mixture ou Lait d'Asafetida*, Fr.; *Asafœtida-Emulsion, Stinkasantmilch*, G.

A useful form for the administration of this antispasmodic, either by mouth or by enema.

Dose.—One to two tablespoonfuls.

MISTURA CHLOROFORMI.

CHLOROFORM MIXTURE.

Emulsio Chloroformi—Emulsion de Chloroforme, Fr.; *Chloroform-Emulsion*, G.

As chloroform is a difficult drug to give internally on account of its great specific gravity and slight solubility in any of the ordinary menstrua, this is a convenient form for introducing it into the stomach to produce the local and also the general effects of a small dose.

Dose.—One to two tablespoonfuls.

MISTURA CRETÆ.

CHALK MIXTURE.

Mixture avec la Craie, Fr.; *Kreidemixtur*, G.

Used in diarrhœas, and conveniently combined with astringents.

Dose.—A tablespoonful.

MISTURA FERRI COMPOSITA.

COMPOUND IRON MIXTURE.

[Griffith's Mixture.]

Mixture de Griffith, Fr.; *Griffith's Eisenmixtur*, G.

This classic mixture produces the characteristic effects of iron, to which is added the stimulation of the myrrh. It has been used in many diseases, of which anæmia is a symptom, more especially perhaps in chlorosis with amenorrhœa. Its rather unpleasant appearance, and the dose required have some weight as objections to its use.

Dose.—One or two tablespoonfuls, twenty to forty grammes.

MISTURA FERRI ET AMMONII ACETATIS.

MIXTURE OF ACETATE OF IRON AND AMMONIUM.

[Basham's Mixture.]

This is an elegant and agreeable preparation of iron, possessing some diuretic and diaphoretic properties. A tablespoonful contains about forty centigrammes, or about seven minims of the tincture of the chloride of iron.

Dose.—From two to five drachms, eight to twenty cubic centimeters.

MISTURA GLYCYRRHIZÆ.

COMPOUND ELIXIR OF GLYCYRRHIZA.

[Brown Mixture.]

Brown Mixture, E.; *Mixture de Réglisse*, Fr.; *Lakritzen-Mixture*, G.

This convenient expectorant is used in acute bronchitis and catarrhal laryngitis, owing its effect in reducing cough largely to the camphorated tincture of opium, which is present to the amount of half a teaspoonful in each tablespoonful, usually stated as the dose, as well as to the wine of antimony, of which there are fifteen minims, more or less (about a cubic centimeter) in the same dose. The presence of opium should never be forgotten, especially when the mixture is given to children.

Dose.—A tablespoonful, twenty cubic centimeters, to an adult; a teaspoonful, five cubic centimeters, to a child of four, and proportionally less to younger children.

MISTURA MAGNESIÆ ET ASSAFŒTIDÆ.

MIXTURE OF MAGNESIA AND ASAFŒTIDA.

[DEWEE'S CARMINATIVE.]

The opium present in this mixture is hardly sufficient to have a very decided effect, even if the dose is made as large as is necessary to get a proper quantity of the other active ingredients. It may be properly used in dyspepsia and flatulence, especially when these are of hysterical or nervous character.

Dose.—A tablespoonful, twenty cubic centimeters, as needed. If a decided effect is desired from the opium, it would be better to add more of the tincture than to increase the dose very much.

MISTURA POTASSII CITRATIS.

MIXTURE OF CITRATE OF POTASSIUM.

[NEUTRAL MIXTURE.]

Mistura Neutralis, E.

This is essentially the same with the solution of citrate of potassium, but has a little more agreeable flavor, and is used for exactly the same purposes.

Dose.—A tablespoonful, twenty cubic centimeters, every hour or two.

MISTURA RHEI ET SODÆ.

MIXTURE OF RHUBARB AND SODA.

May be used in flatulent dyspepsia with a tendency to constipation. A tablespoonful will contain about two-thirds of a cubic centimeter, or ten minims, of fluid extract of rhubarb, and sixty centigrammes, or ten grains, of bicarbonate of soda.

Dose.—From two drachms to three ounces, according to the amount of cathartic effect desired. The larger quantity mentioned should be a purgative, and for this purpose some less bulky preparations of rhubarb might very well be employed.

MORPHINA.

MORPHINE.

[MORPHIA, *Pharm.*, 1870.]

MORPHINÆ ACETAS.

ACETATE OF MORPHINE.

[Morphiæ Acetas, *Pharm.*, 1870.]

MORPHINÆ HYDROCHLORAS.

HYDROCHLORATE OF MORPHINE.

[Morphiæ Murias, *Pharm.*, 1870.]

MORPHINÆ SULPHAS.

SULPHATE OF MORPHINE.

[Morphiæ Sulphas, *Pharm.*, 1870.]

Morphine is by far the most important of the alkaloids of opium. It is present in the proportion of from twelve to sixteen per cent., as given by the officinal process, in powdered opium; and there should be at least nine per cent. in the moist, crude drug. Opium of less richness than this may be employed by the manufacturer for the extraction of morphine, if it can be profitably worked, but is not to be dispensed under the name of opium.

There is at present a tendency to remedy the uncertainty which depends upon the varying morphine contents of different specimens of opium by preparations of standard strength, such as the denarcotized opium of the present Pharmacopœia, which contains fourteen per cent. The alkaloid is seldom used, but its salts are officinal, and it is generally understood that one of these is referred to when morphine is spoken of. The strength of all three is slightly less than that of morphine, the acetate being the least. Corresponding to one hundred parts of morphine, we have of the acetate one hundred and thirty-two (132); hydrochlorate, one hundred and twenty-four (124); and sulphate, one hundred and twenty-five (125). The last is the most largely used, but there is little real difference between them, and they may be used indifferently.

The salts of morphine are administered by the mouth, by the rectum, by the subcutaneous cellular tissue, and through the skin from which the epidermis has been removed by means of a blister. Of these the hypodermic method is by far the most rapid and certain. Injection into a vein takes place only by accident, which should be carefully avoided. Morphine may be found in the excretions, and children may be narcotized by large doses given to the nurse. If a small dose of morphine, one-eighth of a grain, eight milligrammes, be given hypodermically to a person in good health and average susceptibility, he will probably experience within ten

minutes a little feeling of dizziness or fulness in the head, a general sensation of comfort, quickening of the pulse, and a more rapid flow of ideas. At this stage itching, often beginning at the tip of the nose and extending over the whole body, is a somewhat frequent symptom, and may last many hours in sufficient intensity to nearly neutralize the hypnotic tendency of the drug. An urticaria-like eruption is occasionally observed. Nausea and vomiting in nervous persons, and especially in women, is often an early symptom, but has at this time nothing to do with the digestive disturbances which may come later. In exceptional cases, peculiar feelings of faintness or distress are noticed, and may be alarming. In many persons, even at the first dose, and in most after several repetitions, these unpleasant phenomena do not take place. Contraction of the pupil is an early symptom of morphia, but is not marked with a small dose. A spasm of the ocular accommodation has been noticed. Succeeding this period is one of rest, drowsiness, and dreams, usually of quiet character, and very unlike the busy, hilarious delirium of belladonna. There is probably some sweating, and the urine is diminished and perhaps retained. The reaction from this condition is usually slight and not disagreeable. It may be almost imperceptible, but in many persons it is accompanied by nausea—especially on raising the head—headache, and furred tongue, and succeeded by constipation. Hoarseness, lasting for many hours, is often a result of a moderate dose. If the dose be increased, the period of pleasing but quiet excitement is shorter, the drowsiness heavier, the sleep more profound, the pupil more contracted, and the subsequent depression more marked. The pulse and respiration are slower, and the skin moist and clammy. With poisonous doses the period of stimulation is short or none at all, the sleep becomes coma, from which the patient may at first be aroused, but which afterward becomes profound, the pupil extremely contracted, the pulse and respiration extremely slow, the complexion livid, and the skin cold and damp. Before death, which usually takes place from asphyxia, the pupil may dilate and the pulse become quick and feeble. This last change, however, that of the pulse, by no means betokens a necessarily fatal termination. The urine, in severe opium poisoning, may contain albumen and casts, a fact of importance in the diagnosis between this condition and uræmia. The doses which may produce these symptoms vary somewhat, even in persons unaccustomed to its use and in good health; but when the habit of using morphine is an old one it is impossible to say what doses cannot be reached.

Cases have been reported where twenty-two, twenty-four, and fifty grains of morphine have been recovered from. On the other hand, deaths of persons in tolerably good previous health, after the subcutaneous injection of one-fourth of a grain, have been reported, and the author has

seen a case where a somewhat corpulent patient, with organic, probably fatty disease of the heart, sank at once into profound and fatal coma after the subcutaneous injection of eight milligrammes, one-eighth of a grain of sulphate of morphine. There is no undue timidity in regarding one-fourth of a grain, sixteen milligrammes of morphine, given subcutaneously to a patient with whose peculiarities the physician is not familiar, as a dangerous dose, after the administration of which the patient should not be left without a careful watcher. A statement of the extreme amounts of morphine taken by persons habituated to its use would have but little value, and could perhaps be paralleled from the experience of a large proportion of the readers of this book. A somewhat extended inquiry among druggists in Massachusetts, by Dr. F. E. Oliver, revealed the fact that a drachm, four grammes, per week is by no means an uncommon allowance for a regular consumer. The dangers of a confirmed morphine habit have probably been somewhat exaggerated so far as the bodily health is concerned. There is no doubt that a person may be a habitual user of morphine for years and retain a reasonable degree of health, sustaining himself nearly as usual in society and business, and keeping his stimulus from being suspected. The effects most obvious to himself will be digestive disturbances, in the form of loss of appetite, dyspepsia, constipation, and emaciation; and on the part of the nervous system, loss of mental energy, clearness, and decision, and extreme and undescribable distress as the effect of each dose passes off, and lasting until its repetition. The most good and least bad effects may be attained by always using the smallest possible dose which will give the desired effect, and increasing as slowly as possible. The usual tendency among habitual users of morphine for purposes of stimulation, is to increase the dose rapidly. The habit is difficult, but by no means impossible, to escape from. Unfortunately it is far from rare, and it is practised in both ways, the ordinary method by the mouth and the subcutaneous injection, the latter causing apparently less disturbance of the digestion. The physician should never put a hypodermic syringe into the hands of a patient for habitual use, except under extreme necessity; and if obliged to do so occasionally, should withhold all instructions which would enable the patient to continue the administration without medical advice. Many so-called opium antidotes are solutions of morphine.

The uses of morphine are for pain of so many different kinds and sources, that it is easier to consider some cautious and alleged contra-indications than to name all the diseases in which it may bring relief or cure. The fear of a hypothetical congestion of the brain should not prevent the use of morphine for the relief of the severe headache of commencing typhoid, of some nervous headaches, or of those so com-

mon in Bright's disease. Opiates should undoubtedly be used with much caution in renal disease, but not with so much as to entirely prohibit its use. Coma is undoubtedly a distinct contra-indication, but headache is not, nor are convulsions; in fact, one of the most successful methods of treating puerperal and other so-called uræmic convulsions, is the hypodermic injection of morphine, which, indeed, some authorities have contended should be done in what we cannot help calling excessive doses. In all the manifold forms of neuralgia and colic it is not necessary to suggest the use of morphine. In the first of these conditions, however, the risk of formation of the habit is serious, and should be guarded against by stopping the administration early enough, after the pain of the disease has been sufficiently relieved to permit it, to prevent the development of factitious pains, due to the want of morphine and never to be relieved without it. It has been suggested that it is not altogether safe to give very large doses of morphine to relieve very severe pain when there is a prospect of the pain terminating suddenly, as in the case of renal or biliary calculus, thus leaving the morphine unneutralized, and consequently in a condition to develop its full narcotic action. Sometimes the subsidence of severe pain may coincide with the beginning of dangerous narcotism. Neither should it be forgotten, that while it is perfectly proper to use morphine for the relief of intestinal pain, even before a diagnosis is fully established, its anæsthetic effects should not throw the physician off his guard and allow him to overlook a possible internal strangulation or hernia. The doses necessary cannot be definitely stated; but it is better, in case of doubt, to administer two doses, even at the expense of a little time, than to give one which may be too large. In many cases of neuralgia it is by no means necessary to use maximum doses even when the pain seems severe; on the other hand, in excessively severe and obstinate forms of facial neuralgia even the most extreme doses have but slight or transitory effect. The point at which the injection, if the drug is given in this form, should be made, is usually of no consequence; but it may be well, in some cases, to get the counter-irritation, or the moral effect due to a puncture, as near the seat of pain as possible. In some cases of severe traumatic neuralgia, attended with local trophic changes ("causalgia"), the injection even, although itself excessively painful, is best made at the seat of pain. Morphine should not be given to render the bronchial tubes completely insensible to accumulating mucus, lest expectoration should be insufficient. It is a dangerous remedy in bronchitis or pneumonia, where there is any tendency to cyanosis; on the other hand, when the cough is in excess of the amount necessary to proper expectoration, it may be relieved by small doses. The constipating effects of morphine are probably due not only to the diminished activity of the peristaltic movements, but

to diminished intestinal secretion ; hence morphine often increases nausea, headache, etc., when administered during functional disturbances of the digestive organs. Quite small doses may, however, be of service in irritative and nervous dyspepsia. In dysentery, morphine is often combined with salines, and in diarrhœa with astringents. The prompt and speedy relief afforded by morphine subcutaneously in cholera morbus, is in singular contrast with its well attested inefficacy, or even deleterious effect, in epidemic cholera and cholera infantum, at least after the very early stages are past. Spasmodic affections may be benefited by morphine ; asthma usually yields rapidly and completely, while epilepsy is not likely to be improved.

As a hypnotic, morphia has its advantages and disadvantages, the latter, in the great majority of cases, outweighing the former. It is likely to disturb the digestion, and to procure a sleep which is by no means the equivalent of that sent by nature. The risk of habit is always to be considered. If, however, the sleeplessness be due to pain, cough, or other disturbance, as in phthisis, morphine may be the one thing needful. This applies to many forms of cerebral disturbance. In mania, if used at all, it is generally combined with some other hypnotic, such as bromide of potassium, chloral, and where there is great motor excitement, conium. In delirium tremens it has been distinctly shown that the mortality is much increased by morphine administered until sleep is produced. The purely stimulant effects of morphine upon the heart and nervous system, without reference to pain, are well seen in puerperal hemorrhage and syncope, although for this purpose the opium preparations are quite as frequently used. To this stimulant effect is due its powers, second, if to any drug, only to digitalis, of mitigating or curing the distress incident to valvular disease of the heart, besides strengthening and regulating the pulse, and relieving the dyspnœa and dropsy. Over inflammation morphine exercises a sort of control which is not to be completely explained until the relations of that process to the nervous system are better understood. Chronic inflammation is benefited by the relief of attendant pain. A commencing coryza may sometimes be broken up by morphine subcutaneously, or a moderate dose of one of the opium preparations, or of Dover's or Tully's powder. The results of the morphine treatment in peritonitis depend upon the relief of the pain and the diminished peristaltic action, as well as a direct effect on the inflammation itself. Enormous doses are often borne in this affection. It is difficult to class the well-known beneficial action of morphine in diabetes under any of the above heads ; but as it is known that the formation and discharge of sugar are largely under the control of certain nervous centres, it is not strange that the drug most potent to check the excess should be one which acts so powerfully on the

nervous system. The two most important corrigents, and, at the same time, synergists of morphine, are bromide of potassium and atropine. The former of these distinctly increases its hypnotic power and diminishes its tendency to nausea and headache, as well as the other feelings of distress and fainting, which, in exceptional cases, accompany its action. The bromide may be given an hour or two in advance of the morphine. Atropine does not in small doses antagonize the hypnotic effect of the other alkaloid, and possibly adds a little to its analgesic properties. It prevents, however, many of the disagreeable after-effects just mentioned. Atropine may be added to a subcutaneous injection of morphine, in the proportion of one to ten (one milligramme to one centigramme), or extract of belladonna may be made into pills with the morphine in the proportion of two to one. If standard solutions of drugs for hypodermic use are kept on hand, it is better to keep these two alkaloids separate, since it may be desirable to increase the dose of the one without that of the other. Other hypnotics should be used with care when morphine is also freely given. Full doses of bromide, chloral, and morphine should not be given together.

The poisonous effects of this drug, when taken by the mouth, should be combated, in the first place, by emetics and the stomach-pump. If the first refuse to act on account of narcotism, they will perhaps do so after the cold affusion or mechanical stimulation. The chemical antidotes, iodine or tannic acid, might be, but seldom are, used. Among the external stimulants to be employed may be mentioned walking about, slapping or switching (not pounding), cold affusion, and faradic electricity. Into the stomach, after it has been washed out, or into the rectum, should be thrown a strong infusion of coffee without milk or sugar. Atropine is the most powerful stimulant which can be employed in these cases, and should be given subcutaneously in doses of two centigrammes, one-thirtieth of a grain, or a little more, watching the effects upon the respiration and the temperature, and repeating it when necessary. Artificial respiration may be practised if there are signs of failure in that direction.

Morphine salts may be administered dissolved in water or in the form of pills or sugared pellets. Atropine may be combined with it in any of these forms. For subcutaneous use weighed powders may be carried and dissolved as needed. This avoids the risk of a decomposing solution. A standard solution, however, may be made with a little glycerine and carbolic or salicylic acid to preserve it. A blister may be dressed with the powder. Enemata or suppositories should contain no larger dose than if the drug is administered by the mouth. Suppositories are often very convenient, and seem to disturb the digestion but little. It is not desirable to follow a dose of morphine given by the mouth too

closely by a hypodermic injection, since the latter, from its more rapid absorption, may produce its effect at the same time as the former, and thus the effect of an overdose be obtained.

Dose.—One-twentieth of a grain to one-eighth of a grain, three to eight milligrammes (.003 to .008), may be regarded as a small dose, which in the case of the smaller amount may be repeated at not very long intervals. One-eighth to one-fourth, eight to sixteen milligrammes, is a moderate dose; one-fourth to one-half, sixteen to thirty-two milligrammes, is a full dose; one-half to one, thirty-two to sixty-four milligrammes, a large; and over one grain, sixty-four milligrammes, a very large dose. These figures are applicable to an average adult not accustomed to the use of the drug. Women are more sensitive to morphine than men, and children still more so in proportion to their age. Among persons habituated to its use, each one has his own scale of doses.

MOSCHUS.

MUSK.

Musc, Fr.; *Moschus, Bisam*, G.

The physiological action of musk is not well determined, but, so far as known, it is that of a feeble stimulant and antispasmodic. The odor remains in the secretions for several days after discontinuing the drug. It is used in adynamic nervous debility, hysterical spasms, laryngismus stridulus, insomnia, and also in collapse, occurring either after severe injuries or in fevers, as typhoid. Its want of reputation is said to be due, first, to the small doses which in many cases it is necessary to prescribe on account of the high price; and, secondly, to the fact that its use has in most cases been deferred until the last stages of fevers, and hence its prescription is looked upon as equivalent to a fatal prognosis.

It is extremely difficult to obtain pure musk.

Dose.—Two and a half to five grains, sixteen to thirty-two centigrammes (.16 to .32), in powder or emulsion with aromatics. Camphor, almond syrup, and kermes mineral diminish the smell.

MUCILAGO ACACIA.

MUCILAGE OF ACACIA.

Mucilago Gummi Arabici, P. G.; *Mucilage de Gomme Arabique, Mucilage Arabique*, Fr.; *Gummischleim*, G.

Mucilages should always be freshly prepared, because they rapidly undergo decomposition or become mouldy, and are more apt when sour

to derange digestion. This preparation may be used alone as a demulcent or as a vehicle for many substances which would not make a convenient mixture with water. It should not be prescribed with tinctures, except in small quantity.

Dose.—Indefinite.

MUCILAGO CYDONII.

MUCILAGE OF CYDONIUM.

[Mucilage of Quince Seeds.]

This is also a bland demulcent preparation which may be used for irritation of mucous surfaces.

Dose.—Not limited.

MUCILAGO SASSAFRAS MEDULLÆ.

MUCILAGE OF SASSAFRAS PITH.

Mucilage de Moelle de Sassafras, Fr.; *Sassafrasmark-Schleim*, G.

Used both externally and internally as a bland protective to irritated or abraded surfaces.

Dose.—Not limited.

MUCILAGO TRACANTHÆ.

MUCILAGE OF TRAGACANTH.

Mucilage de Gomme Adragante, Mucilage Adragant, Fr.; *Traganth-Schleim*, G.

Used for its mechanical properties in causing cohesion, as, for instance, in making of pills, troches, and lozenges. It is a better mucilage than that of acacia for emulsions of cod-liver oil. It has little, if any, physiological activity.

MUCILAGO ULMI.

MUCILAGE OF ELM.

Mucilage d'Écorce d'Orme Fauve, Fr.; *Ulmenrinden-Schleim*, G.

Also a useful demulcent drink in catarrh of mucous surfaces generally.

MYRISTICA.

NUTMEG.

Semen Myristicæ, P. G.; *Nux Moschatu, Muscade, Noix de Muscade*, Fr.; *Muskatnuss*, G.

Narcotic effects have been noted from this substance. Animals have been killed by its volatile oil. It is used chiefly as a culinary condiment and for flavoring medicinal preparations, for which purpose the essential oil and the officinal preparations are the most convenient form.

Dose.—Five to twenty-five grains, thirty centigrammes to one and a half gramme.

MYRRHA.

MYRRH.

Gummi Resina Myrrha; Myrrhe, Fr.

In small doses, a stimulant to the gastro-intestinal mucous membrane; in large doses, an irritant to these surfaces, hence causing emesis and catharsis. It quickens the pulse, and is supposed to diminish bronchial secretion. It seems to have a somewhat favorable effect on chronic pharyngitis. It is rarely used except in combinations, and as a cleansing topical application, in the form of the tincture, mixed with water, to spongy gums, stomatitis, etc.

Dose.—Five to thirty grains, thirty centigrammes to one and a half gramme, in powders, pills, or mixtures.

NUX VOMICA.

NUX VOMICA.

Semen Strychni, P. G.; *Semen Nucis Vomicæ—Poison-Nut, Quaker Buttons*, E.; *Noix Vomiques*, Fr.; *Krähen-Augen, Brechnuss*, G.

As the medicinal virtues of nux vomica are dependent upon its strychnine, reference is made to that article for detailed description. The amount of strychnine present in nux vomica varies, and therefore when it is desired to produce the physiological action, it is much safer to use definite doses of strychnine. The use of nux vomica itself and its preparations are chiefly restricted to those cases where it is useful simply as a bitter tonic, and accurate dosage is not required, as in atonic dyspepsia or inappetence. Nux vomica should not be given except in form of tincture, abstract, extract, or fluid extract. Reference to these articles is suggested.

OLEATUM HYDRARGYRI.

OLEATE OF MERCURY.

It is stated that the ten-per-cent. preparation does not keep so well as that of twenty per cent. For use where it is desired to introduce mercury into the circulation without passing through the intestinal canal, this is more elegant than the ointment, but the amount of mercury absorbed can only be determined by the effects. The axillæ and groins are the most convenient places for this form of medication. The ten-per-cent. solution of mercury may be used to the amount of ten or twenty drops. This should be painted or *gently* rubbed on the skin.

OLEATUM VERATRINÆ.

OLEATE OF VERATRINE.

Used to introduce veratrine into the the local circulation by embrocation in certain forms of local neuralgia. It should not be applied over an extensive surface, lest constitutional symptoms be developed. The naked fingers should not be used for its application.

Dose.—Six to twenty-five grains, forty to one hundred and sixty centigrammes (.40 to 1.60).

OLEORESINA ASPIDII.

OLEORESIN OF ASPIDIUM.

[Oleoresina Filicis, 1870—Male Fern.]

Extractum Filicis Æthereum, Br.; *Extractum Filicis*, P. G.; *Oleum Filicis Maris—Liquid Extract of Male Fern*, E.; *Huile (Extrait Éthéré) de Fougère Mâle*, Fr.; *Wurmfarnextrakt, Wuurmfarnöl*, G.

The oil of male fern destroys the life of the tænia solium and bothriocephalus latus; but, in order that it may do this effectively, the intestines should be comparatively empty, that the poison may be brought more thoroughly in contact with the worm. Fasting for twenty-four hours, with perhaps a scanty milk diet, on the part of the patient, is, therefore, a prerequisite to treatment. The oleoresin is best administered in capsules or emulsion with mucilage of tragacanth; but, undoubtedly, it is better to associate with this medicine, brayera (koosso). The parasiticide may be followed by a cathartic. The treatment should be repeated until the head of the tænia has been expelled, though intervals of a week should intervene.

Dose.—Thirty to sixty minims, two to four cubic centimeters, repeated every three hours for two or three times.

OLEORESINA CAPSICI.

OLEORESIN OF CAPSICUM.

Oléorésine (Extrait Éthérée) de Capsique, Fr. ; *Spanischpfeffer-Oelharz*, G.

The chief use of this very strong extract of capsicum, sometimes known as capsicin, is as a rubefacient in plasters and liniments. Half a grain volatilized in a small room will provoke sneezing among its occupants, showing how irritating this preparation may be to the mucous surfaces. There are occasions where this severe irritant might be of value externally, undiluted. As the other preparations of capsicum are much too strong for use internally without great dilution, this, which is still stronger, is by no means required, and its dose is stated rather as a matter of form than as a recommendation of its practical use. It should be remembered that warm water increases its irritating effect.

Dose.—One-eighth of a grain to one grain, eight milligrammes to six centigrammes (.008 to .06).

OLEORESINA CUBEBÆ.

OLEORESIN OF CUBEB.

Extractum Cubebarum, P. G. ; *Extractum Cubebæ Ætherum—Oléorésine de Cubébe*, Fr. ; *Kubebenextrakt*, G.

This oleoresin produces a sense of heat in the stomach, and renders the urine acrid and irritating. As it contains the volatile oil and the cubebic acid, it probably fairly represents the therapeutic virtues of cubeb and is used in the same way. It possesses the advantage of superior concentration over the fluid extract.

Dose.—Five to thirty minims, thirty centigrammes to two grammes, on sugar or in capsules.

OLEORESINA LUPULINÆ.

OLEORESIN OF LUPULINE.

Extractum Lupulini Ætherum—Oléorésine de Lupuline, Fr. ; *Ätherisches Lupulinextrakt*, G.

This preparation represents fairly the hypnotic and narcotic virtues of hop and lupulin, and may be prescribed accordingly.

Dose.—Two to twenty grains, thirteen to one hundred and thirty centigrammes, in pill or capsule.

OLEORESINA PIPERIS.

OLEORESIN OF PEPPER.

Oléorésine de Poivre Noir, Fr.; *Ätherisches Pfefferextrakt*, G.

It is extremely doubtful whether this preparation contains the medicinal virtues of pepper, since but little piperine is to be found therein. It contains, however, the volatile oil and resins, and probably has that amount of stimulant action common to so many volatile oils.

Dose.—One or two minims, six to twelve centigrammes, on sugar or in pill or capsule.

OLEORESINA ZINGIBERIS.

OLEORESIN OF GINGER.

Extractum Zingiberis Æthereum—Oléorésine (Piperoide) de Gingembre, Fr.; *Ätherisches Ingwerextrakt*, G.

A very strong preparation of ginger. There are few therapeutic uses of this drug which would not be equally well subserved by the tincture.

Dose.—One or two minims largely diluted.

OLEUM ADIPIS.

LARD OIL.

Used in making the ointment of nitrate of mercury. Like some other animal oils, it might be tried as an inferior substitute for cod-liver oil in cases where the taste of the latter is exceedingly offensive to the patient.

OLEUM ÆTHEREUM.

ETHEREAL OIL.

Oleum Vini—Heavy Oil of Wine, E.; *Huile d'Éther, Huile de Vin Pésante, Huile Volatile Éthérée*, Fr.; *Schweres Weinöl*, G.

The properties of the heavy oil of wine, which constitute one-half of this preparation, have not been very carefully studied, but it seems to have an anodyne and narcotic action akin to that of ether. The ethereal oil is not used by itself, but is an ingredient (or should be) of the spiritus ætheris compositus.

OLEUM AMYGDALÆ AMARÆ.

OIL OF BITTER ALMONDS.

Oleum Amygdalarum (Amararum) Æthereum—Essence d'Amandes Amères, Fr.; *Bittermandelöl*, G.

This essential oil, formed by the reaction of amygdalin and emulsin in the residue of bitter almonds after the expression of the fixed oil, contains a varying percentage (three to fourteen) of hydrocyanic acid, and has been used to obtain the effects of this extremely active drug. For this purpose, however, notwithstanding the fact that it is a stable preparation, it is unfitted by the uncertainty in composition. It is probably used in the manufacture of patent medicines which purport to be made of "wild cherry." It is also employed as a flavoring in cookery and confectionery, and must be looked upon as a somewhat dangerous agent for that purpose. The poisonous acid is, however, not essential to the taste or smell, and may be removed by distillation with caustic potash, or other processes, the purified product then becoming no more poisonous than many volatile oils, so that it may be taken in considerable doses without producing dangerous symptoms, although it is very pungent locally, and gives rise to an intoxication resembling that of alcohol.

Nitrobenzol, or "oil of mirbane," or "artificial essence of bitter almonds," contains no hydrocyanic acid, although resembling closely the oil of bitter almonds, and being sometimes, like the oil, used for flavoring. It is, however, a dangerous poison in small doses or when inhaled. The poisoning, unlike that of hydrocyanic acid, comes on very slowly and is distinguished by general paresis, convulsions, irregular action of the heart, and a peculiar blue (cyanotic) complexion, often lasting some days, when recovery takes place.

Dose.—A quarter of a drop to one drop, one to four centigrammes (.01 to .04), in a mixture.

OLEUM AMYGDALÆ EXPRESSUM.

EXPRESSED OIL OF ALMONDS.

Oleum Amygdalæ, Br.; *Ol. Amygdalæ Dulcis, Ol. Amygdalarum—Expressed (Sweet) Oil of Almond*, E.; *Huile d'Amandes Douces*, Fr.; *(Süsses) Mandelöl*, G.

A bland oil, having no active properties, which may be used as demulcent in the form of an emulsion. It enters into the composition of rose-water ointment, and may be used in other combinations as an external application.

OLEUM ANISI.

OIL OF ANISE.

Essence d'Anis, Fr.; *Anisöl*, G.

A stimulant and carminative.

Dose.—Two to five drops.

OLEUM AURANTII CORTICIS.

OIL OF ORANGE PEEL.

A flavoring which may be added to decoctions and infusions.

Dose.—A few drops.

OLEUM AURANTII FLORUM.

OIL OF ORANGE FLOWERS.

[Oil of Neroli.]

A flavoring.

Dose.—A few drops.

OLEUM BERGAMII.

OIL OF BERGAMOT.

Oleum Bergamottæ, P. G.; *Essence de Bergamote*, Fr.; *Bergamottöl*, G.

Used as a flavoring in cosmetics and aromatic waters.

OLEUM CAJUPUTI.

OIL OF CAJUPUT.

Oleum Cajeputi, P. G.; *Oil of Cajuput*, E.; *Essence de Cajeput*, Fr.; *Cajaputöl*, G.

This oil is externally irritant, and, in the stomach, a stimulant like other volatile oils. Although it has enjoyed a reputation in a vast number of diseases, its use is now very limited. It has been used as an external parasiticide and also as an anthelmintic. It may be inserted into a carious tooth to relieve pain. In various abdominal pains and spasms it may be of value, although it is doubtful if it possesses any special advantages over oil of turpentine, which it much resembles.

Dose.—One to ten drops, administered with sugar or in a mixture.

OLEUM CARI.

OIL OF CARAWAY.

Oleum Carui, Br.; *Oleum Carvi*, P. G.; *Essence de Carvi*, Fr.; *Kümmeelöl*, G.

Uses.—As anise.

Dose.—A few drops.

OLEUM CARYOPHYLLI.

OIL OF CLOVES.

Oleum Caryophyllorum, P. G.; *Essence de Girofles*, Fr.; *Nelkenöl*, G.

Uses.—As anise, or on a plug of cotton in carious teeth.

Dose.—A few drops.

OLEUM CHENOPODII.

OIL OF CHENOPODIUM.

Essence de Chénopode Anthelmintique, Fr.; *Amerikanisches Wurmsamenöl*, G.

An anthelmintic. Used more especially against the ascaris lumbricoides. It seems to have also some tonic properties.

Dose.—Five to ten drops with sugar, repeated several times, and followed by a cathartic.

OLEUM CINNAMOMI.

OIL OF CINNAMON.

Oleum Cinnamomi Zeylanici, P. G.; *Oil of Cassia, Oil of Ceylon Cinnamon*, E.; *Essence de Cannelle*, Fr.; *Zeylonisches Zimmtöl*, G.

Uses.—As anise and as a flavoring.

Cinnamon is supposed to have an astringent action, especially displayed in uterine hemorrhage. The oil, however, is not used for this purpose, although perhaps it might be.

Dose.—A few drops.

OLEUM COPAIBÆ.

OIL OF COPAIBA.

Oleum Balsami Copaivæ—Essence de Copahn, Fr.; *Copaïbaöl*, G.

As important constituents of copaiba, namely, the resins, are not present in this preparation, it has little or no value as a diuretic. Its ac-

tion resembles that of other volatile oils, being irritant to the gastro-intestinal mucous membrane. It is eliminated by the urine and the respiration, partly unchanged and partly oxidized to a resin. It may, perhaps, be useful in chronic disease of the bronchial tubes, and has some action as an antiblenorrhagic.

Dose.—Ten to fifteen drops.

OLEUM CORIANDRI.

OIL OF CORIANDER.

Essence de Coriandre, Fr.; *Korianderöl*, G.

Uses.—As anise, and as a corrigent, especially to senna.

Dose.—A few drops.

OLEUM CUBEBÆ.

OIL OF CUBEB.

Oleum Cubebarum—Oil of Cubebs, E.; *Essence de Cubèbes*, Fr.; *Kubebenöl*, G.

Essentially the same as oil of copaiba.

Dose.—Ten to fifteen drops.

OLEUM ERIGERONTIS.

OIL OF ERIGERON.

Resembles most other volatile oils. Somewhat diuretic and stimulant. It is said to quicken uterine contractions.

Dose.—Five to ten drops.

OLEUM EUCALYPTI.

OIL OF EUCALYPTUS.

Eucalyptol, E.

This oil closely resembles oil of cajuput. It is an antiseptic, more or less irritant to the alimentary canal, and has the general stimulant properties of the volatile oils. It may be employed as a local disinfectant in cases of offensive decomposition in the catarrhal discharges of the air-passages, or even in gangrene of the lung.

A few drops should be placed on a sponge in a sufficiently roomy glass

tube and inhaled. It has been used in the form of vaginal suppository to prevent septic poisoning in puerperal cases. It may also be administered by the stomach on sugar or in a mixture. There is no good reason to suppose that this oil, or the leaves from which it is derived, possesses any specific virtues in malarial diseases. If used externally, the oil may be dissolved in alcohol.

Dose.—Two to five drops.

OLEUM FŒNICULI.

OIL OF FENNEL.

Essence de Fenouil, Fr.; *Fenchelöl*, G.

Its action and uses are essentially the same as those of anise.

Dose.—Five to ten drops.

OLEUM GAULTHERIÆ.

OIL OF GAULTHERIA.

[Oil of Wintergreen.]

Oil of Checkerberry, Oil of Boxberry.

Contains a large proportion of methyl-salicylic acid, and was the first source from which salicylic acid was manufactured. This oil, or a very similar one, is found in several other plants, notably the bark of sweet birch. It is generally used as a flavoring for medicines and confectionery. It has lately been employed in the dose of ten drops every two hours in acute rheumatism. It seems to have about the same action as salicylic acid, and the urine, after its use, resists decomposition and gives the salicyluric reaction with chloride of iron.

Dose.—A few drops.

OLEUM GOSSYPII SEMINIS.

COTTON SEED OIL.

Cotton seed oil may very properly be used for many medicinal purposes under its own name, as well as when imported in foreign bottles under the name of olive oil. It is used in several preparations of the present Pharmacopœia.

Dose.—Indefinite.

OLEUM HEDEOMÆ.

OIL OF HEDEOMA.

[OIL OF PENNYROYAL.]

Dose.—Two to ten drops.

OLEUM JUNIPERI.

OIL OF JUNIPER.

Oleum Fructus (vel Baccæ) Juniperi, Oil of Juniper Berries, E.; *Essence de Genièvre,* Fr.; *Wachholderbeeröl,* G.

The special activity which distinguishes this from many other volatile oils is its diuretic property. This may be perceptible even when it is administered by inhalation.

Dose.—Five to fifteen drops.

OLEUM LAVANDULÆ.

OIL OF LAVENDER.

Essence de Lavande, Fr.; *Lavendelöl,* G.

Flavoring and stimulant.

Dose.—Four to ten drops.

OLEUM LAVANDULÆ FLORUM.

OIL OF LAVENDER FLOWERS.

Flavoring.

Dose.—A few drops.

OLEUM LIMONIS.

OIL OF LEMON.

Oleum Citri, P. G.; *Oleum de Cedro—Essence de Citron,* Fr.; *Citronenöl,* G.

Flavoring.

Dose.—A few drops.

OLEUM LINI.

OIL OF FLAXSEED.

Linseed Oil, E.; *Huile de Lin,* Fr.; *Leinöl, Leinsamenöl,* G.

Laxative in doses of one or two ounces, thirty to sixty cubic centimeters, but seldom used for this purpose. It may be used externally, but cotton seed oil has taken its place in the "Linimentum calcis."

OLEUM MENTHÆ PIPERITÆ.

OIL OF PEPPERMINT.

Essence de Menthe Poivrée, Fr.; *Pfefferminzöl*, G.

Possesses somewhat more marked properties as a local anodyne than other volatile oils. A few drops may be rubbed upon a painful part, and the effect will be enhanced if it be covered so as to prevent evaporation.

Dose.—One to three drops.

OLEUM MENTHÆ VIRIDIS.

OIL OF SPEARMINT.

Essence de Menthe Vert, Fr.; *Romisch-Minzöl*, G.

Nearly the same as oil of peppermint, but somewhat less active.

Dose.—Two to five drops.

OLEUM MORRHUÆ.

COD LIVER OIL.

Oleum Jecoris Aselli, P. G.; *Oleum Hepatis Morrhuæ—Cod Oil*, E.; *Huile de Morue, Huile de Foie de Morue*, Fr.; *Leberthran, Stockfischleberthran*, G.

Cod liver oil is well known to be one of the most easily digestible of fats, so that it may be taken by the week or month without disordering the digestion. It is found to pass through animal membranes more rapidly than any other fat, and in this respect the darker oils have a slight advantage over the lighter-colored, such as are directed in the Pharmacopœia, but not enough to compensate for the increased liability to gastric derangement, or even the much more repugnant taste and smell. This easy diffusibility has been attributed to the presence of free oleic acid, which renders the saponification and absorption of the oil in the intestine more rapid and complete. A similar function has been claimed for the biliary matters which are found in it. Its therapeutic value has been supposed to depend upon the presence of iodine, bromine, and phosphorus, as well as the organic base, trimethylamin, which has been used in acute and chronic rheumatism with alleged remarkable success. The quantities of these substances are, however, far too small to contribute to the effect of the oil.

The therapeutic applications of cod liver oil are simple, although the number of diseases in which it has been and may be used with great ad-

vantage is very large. Its administration is specially indicated in those conditions of depraved nutrition shown by an over-development of lowly organized tissue, easily breaking down, or keeping up a long-continued suppuration, which can only be vaguely characterized, and are equally vaguely named, "scrofulous." It may thus be equally applicable in chronic inflammations of the skin, the conjunctivæ, the bones and cartilages, the mucous membrane of the air-passages, both naso-pharyngeal and pulmonary, and of the lungs themselves. It is in this last class of cases that cod liver oil becomes, though no specific, the most useful of medicines. Patients in whom the destructive local process may be all the while going on, often gain in weight and strength, and lose many troublesome symptoms. There is but little doubt that in a great number of cases the condition of the patient is materially improved, and his chances of life increased if he can take this drug without gastric trouble or loss of appetite.

Around the shores of the North Sea and among the population engaged in the capture of the codfish the oil of his liver has been, for a long time before its introduction into general practice, reputed of great efficacy in the treatment of chronic rheumatism.

The constipation of delicate children may be advantageously treated with it. The usefulness of this drug is, however, seriouly impaired by the difficulties which lie in the way of its administration, and which depend, firstly, upon its unpleasant taste, and, secondly, upon the digestive disturbances to which it occasionally gives rise. Fortunately, children are apt to like and digest it well, and a certain number of adults are in the same condition. If possible, the patient should be persuaded to take the oil unmixed, and the exercise of a little determination on his part for a few days may suffice to remove the extreme disgust with which it is sometimes regarded. Admixtures with whiskey or with aromatic waters, such as those of peppermint or cinnamon, are often made. The mouth may be washed out, just previous to taking the dose, with a little brandy, whiskey, or aromatic.

Emulsions are prepared with white of egg, mucilage of tragacanth, extract of malt, or various syrups, which may all be useful under some circumstances, but none of which are quite successful in concealing the taste of the oil. Pancreatic emulsions are of great value, not so much in disguising the taste as in preventing the fishy eructations so troublesome to many persons, even to those who can bear without disgust the taste of the oil when first taken. A teaspoonful of the non-officinal "liquor pancreaticus," given half an hour after the dose, will be of use in preventing this symptom. After these devices, however, have been tried there will be some cases in which all attempts to administer the drug without affecting either the appetite or digestion will fail, and in such cases the attempt must be abandoned. The oil is to be considered as a supplementary and

peculiar food, and if its use prevents other food from being taken it is doing more harm than good.

Dose.—One or two drachms, four to eight cubic centimeters, not on an empty stomach, and increased.

OLEUM MYRCIÆ.

OIL OF MYRCIA.

[Oil of Bay.]

Used for flavoring, chiefly of cosmetic preparations.

OLEUM MYRISTICÆ.

OIL OF NUTMEG.

Oleum Nucistæ Ætherеum—*Volatile Oil of Nutmeg*, E.; *Essence de Muscades*, Fr.; *Ätherisches Muskatöl*, G.

Used merely for its flavor. A large dose would probably be followed by some narcotic effects like those of nutmeg.

Dose.—A few drops.

OLEUM OLIVÆ.

OLIVE OIL.

Oleum Olivarum, P. G.; *Sweet Oil*, E.; *Huile d'Olive*, Fr.; *Olivenöl*, G.

This well-known oil, which is often adulterated with others which are cheaper, though probably equally valuable for culinary as well as medicinal purposes, possesses no very marked therapeutic powers. It is used as a local application, either alone in sprains, bruises, etc., where it facilitates rubbing, or as an ingredient of liniments, where it may act the part of a diluent. It may be used as an enema in the quantity of a pint, half a litre, to unload the large intestine. It should be *followed* by warm water, and not mixed with it. Internally it is somewhat laxative in large doses, but is seldom given except to children. Large doses—a pint per diem—have been prescribed for gall-stones, with the result of producing discharges of small semi-solid masses resembling, and sometimes mistaken for, gall-stones. They are, however, really lumps of soap, formed with the alkalies of the intestinal secretions.

Dose.—As a laxative for adults, one to two fluidounces, thirty to sixty cubic centimeters; for infants, one to two fluidrachms, four to eight cubic centimeters.

OLEUM PHOSPHORATUM.

PHOSPHORATED OIL.

Huile Phosphorée, Liniment Phosphorée, Fr.; *Phosphorhaltiges Oel,* G.

A definite preparation of this character is far preferable to the "saturated solutions," since the solubility of phosphorus in vegetable oils varies considerably. A fatty vehicle presents phosphorus in the most favorable condition for absorption. Many of the fatal cases of poisoning from the medicinal use of phosphorus have occurred when preparations of this class were administered, and it has been pointed out that those authors who employ an oily solvent speak much more cautiously of this dangerous drug than those who use another vehicle, as ether or alcohol. It is stated that if phosphorus is employed for neuralgia, large doses of one-twelfth of a grain, five milligrammes, should be given to begin with, since the same dose will be less efficient if arrived at gradually. The author who makes this recommendation does not approve of a solution in a vegetable oil. It appears prudent, therefore, to restrict the use of the present preparation to those cases where the smaller doses are to be used, and if it is desired to employ larger ones, to have recourse to other solutions. The **Dose** may then be stated as from one to five minims, six to thirty-two one-hundredths of a cubic centimeter (.06 to .32), corresponding to one one-hundredth to one-twentieth of a grain, or six-tenths of a milligramme to three milligrammes of solid phosphorus. The latter dose is to be observed with caution, if long continued. The dose may be repeated three or four times a day.

OLEUM PICIS LIQUIDÆ.

OIL OF TAR.

A recent introduction to the Pharmacopœia. It may be used as a substitute for the "oil of cade," "oleum juniperi empyreumaticum"—which is of uncertain character and purity, and on this account not admitted to the Pharmacopœia—for external application in diseases of the skin. It may be made into an ointment, but as it is freely soluble in alcohol, can be applied in the more sightly form of lotion instead of tar ointment.

OLEUM PIMENTÆ.

OIL OF PIMENTA.

[Oil of Allspice.]

Essence de Piment de la Jamaïque, Fr.; *Nelkenpfefferöl,* G.

Aromatic.

Dose.—A few drops.

OLEUM RICINI.

CASTOR OIL.

Oleum Palmæ Christi—Huile de Ricin, Fr.; *Ricinusöl*, G.

This well-known oil possesses a slightly acrid after-taste, which is also found in the ricinoleic acid derived from it. The source of its cathartic activity has not been definitely fixed, but may be connected with changes in the acid just named taking place in the alkaline juices of the intestine. It is clear that its activity cannot be due to any acrid principle accidentally present from the outer coats of the seeds, since the oil would then be one of the most uncertain, instead of being, as is well known, one of the most certain of cathartics. Although derived from a botanical source closely allied to that of croton oil, it differs entirely from that drug in the violence of the cathartic effects; but if the action of the *seeds* of the respective plants is compared, the difference is much less, since a very small quantity of castor bean may give rise to a severe attack of vomiting and purging, while in larger quantities they have caused severe gastro-enteritis, and even death. Castor oil, when swallowed, may give rise to a certain amount of nausea, partly due to its viscid consistency and sickish, though not strong, taste. It is a mild and safe cathartic, usually unloading the bowels thoroughly and with little general disturbance. The oil, either in its natural condition or in cheesy or soap-like flakes, may often, especially after the larger doses, be found in the discharges. A single instance has been reported where the oil was secreted by the skin.

This oil is used when a mere unloading of the intestines, without any depleting or derivative effect is desired, as in fecal accumulation in the colon, in pregnancy or after labor, in intestinal colic, in diarrhœa from irritating or undigested food, or to succeed an anthelmintic. It may be administered without any corrigent, but it is usually desirable to envelop it in some acid or aromatic aqueous solution or spirit, such as lemon or orange-juice, or a flavored glycerine. The froth of porter may be used in the same way. Emulsions are not desirable. Articles of ordinary diet are not to be selected as vehicles. Flexible gelatine capsules capable of containing a full dose of this drug have been made. The smaller capsules, containing a small fraction of a dose, but acting like a full one, contain an addition of some more active cathartic. Castor oil may be added to cathartic enemata to increase their efficacy. It is frequently employed in hair washes, dissolved in alcohol.

Dose.—From one drachm to one ounce, four to thirty cubic centimeters, according to the susceptibility of the patient as estimated on the

basis of former experience or the judgment of the physician. Half an ounce, fifteen grammes, is an average dose for an adult; that for children may be somewhat smaller, but not in proportion to the age.

OLEUM ROSÆ.

OIL OF ROSE.

Oleum Rosarum—Attar, Otto of Rose, E.; *Essence de Rose*, Fr.; *Rosenöl*, G.

This very expensive oil is sparingly used in flavoring, chiefly for cosmetic preparations, although it may be used internally.

OLEUM ROSMARINI.

OIL OF ROSEMARY.

Oleum Anthos—Essence de Romarin, Fr.; *Rosmarinöl*, G.

Possesses the usual properties of volatile oils, but is used chiefly as an external irritant in liniments. Death has taken place from the internal administration of excessive quantities.

Dose.—Three to six drops.

OLEUM RUTÆ.

OIL OF RUE.

Essence de Rue, Fr.; *Rautenöl*, G.

This does not essentially differ in its kind of action from the other volatile oils, but has been used specially in amenorrhœa and to produce abortion. Doses of ten drops produce gastric, together with renal irritation, accompanied by a smell of rue in the urine, and some slightly narcotic effects. The pulse, in some cases, has become slower under its influence. It has also been used in colic and as an "antispasmodic."

Dose.—One to five drops, in mucilage.

OLEUM SABINÆ.

OIL OF SAVINE.

Essence de Sabine, Fr.; *Sadebaumöl*, G.

This oil quickens the pulse and produces rectal and vesical irritation. It is eliminated by the skin, breath, and urine. Larger doses cause continued vomiting. It has been used to produce abortion, and with fatal effect to the mother as well as the child.

Dose.—Two to ten drops.

OLEUM SANTALI.

OIL OF SANTAL.

This volatile oil has been somewhat recently introduced into practice as a substitute for copaiba. It possesses the advantage over this drug that its smell is less disagreeable, while, on the other hand, it is much stronger and highly characteristic. It may be given in capsules or mixture.

Dose.—Ten to twenty drops.

OLEUM SASSAFRAS.

OIL OF SASSAFRAS.

Essence de Sassafras, Fr.; *Sassafrasöl*, G.

A flavoring material for medicines and confectionery. Together with oleum gaultheriæ, it constitutes the flavoring of the syrup popularly known as sarsaparilla.

Dose.—A few drops.

OLEUM SESAMI.

OIL OF SESAMUM.

[Benné Oil.]

Huile de Sésame, Fr.; *Sesamöl*, G.

This is simply an addition to the number of bland fixed oils, very similar to olive oil, and having no special therapeutic properties.

Dose.—Indefinite.

OLEUM SINAPIS VOLATILE.

VOLATILE OIL OF MUSTARD.

Oleum Sinapis Æthereum—Volatile Oil of Mustard, E.; *Essence de Moutarde*, Fr.; *Ätherisches Senföl*, G.

This oil, which forms the active principle of mustard, is a powerful irritant, and one of the most poisonous of all the volatile oils, giving rise to violent gastro-enteritis. It may be used externally as a counter-irritant, much diluted with alcohol or oil, or as an ingredient of irritating liniments or ointments. Internally, although in minute doses, it might, like mustard, be used as a condiment to stimulate appetite and digestion, or in larger ones, serve as an emetic, the mustard itself is preferable.

The **Dose** of the oil, if used, should be only a fraction, not more than one-fourth of a drop.

OLEUM SUCCINI.

OIL OF AMBER.

Huile Volatile de Succin, Fr. ; *Bernsteinöl*, G.

This empyreumatic oil is an external irritant. Internally it has the usual stimulant action of volatile oils, and, like many other drugs of offensive odor and taste, is reputed antispasmodic, and may be used accordingly.

Dose.—From five to ten drops in capsule.

OLEUM TEREBINTHINÆ.

OIL OF TURPENTINE.

Essence de Térébenthine, Fr. ; *Terpentinöl*, G.

This is the most abundant and most useful of the volatile oils. On exposure to the air it gradually becomes thicker and acquires a yellow color and a more disagreeable odor. In this condition, known as "fat oil," it contains ozone, and is more efficient as an antidote to phosphorus than the rectified oil.

Oil of turpentine is readily absorbed from the intestinal canal and from the lungs. Absorption from the skin is not so easy or certain. It is eliminated by the breath and urine, imparting to the former its own smell, and to the latter, at first, an odor of violets, and, later, if the dose be large, that of the turpentine itself. It sometimes causes itching and even a cutaneous eruption. Externally it is an irritant, at first rubefacient, but, if remaining long enough, causing blisters. Internally, small doses quicken the pulse and increase diuresis. Larger ones produce gastro-intestinal irritation, colic, griping, diarrhœa, giddiness, and a feeling of fulness in the head, and, in poisonous quantities, coma. One of the most characteristic results of its use, especially when given in small doses frequently repeated, or inhaled in the form of vapor for some time, is genito-urinary irritation, doubtless owing to the passage of the oil in process of elimination through the kidneys and urinary ducts. This condition is indicated by pain in the back, increased frequency of micturition, and, later, difficult and painful urination, and occasionally bloody urine. Menorrhagia and dysmenorrhœa are sometimes observed in the female.

Animals have been killed by large doses of this oil, and show that it produces gastro-enteritis, general paralysis, and loss of reflex excitability sometimes preceded by convulsions. The post-mortem examination discloses the usual appearances of gastro-enteritis, together with, in some cases, congestion and commencing inflammation of the lungs, and, when the administration has been sufficiently prolonged, fatty degeneration of the kidneys, liver, and muscles. Fatal cases in man are excessively rare.

Oil of turpentine is used in medicine externally as a stimulant to gangrene, frost-bite, burns, carbuncles, and ulcers. As a counter-irritant it may be rubbed upon the surface, which is then to be securely covered with lint or cloths wet in the oil. It should not be allowed to remain too long at once, as the pain from it keeps on increasing for some time after its removal. It may be applied in the form of liniment or ointment for the relief of rheumatic and neuralgic pains.

Internally its general stimulant effects in many forms of low fever, as well as its action in increasing the peristaltic movements, give it a great value, as in typhoid attended by meteorism and an adynamic condition. The same symptoms may render it applicable in typhus and puerperal fever. In some forms of neuralgia, particularly sciatic, its value probably depends upon its stimulating action as well as upon its tendency to relieve the constipation and overloading of the colon so common in this affection. In colic, especially hepatic, the same reasons probably hold good. If decided cathartic action is desired, it is better to give the turpentine with another drug, as castor oil, in enema or in the usual way. A full dose of oil of turpentine, even alone, or, still better, in combination as just recommended, is much less likely to make any vesical trouble than when given in small doses not sufficient to act upon the bowels. It has been stated to have a curative effect upon nervous headache.

Turpentine is used in bronchial catarrh, with or without excessive secretion, and conceals or removes the fetor of the breath which may accompany this or other pulmonary diseases with decomposing secretion. Even in gangrene the odor is greatly diminished, and healing of the cavity promoted by the inhalation of the vapor. As a diuretic it is to be cautiously, if at all, used, remembering its irritant effect upon the kidneys. Its use in the diagnosis of renal disease has been suggested, the appearance of its odor in the urine being taken as proof of the secreting power of the kidney. Chronic inflammations of the urinary passages are benefited by it, as in pyelitis. It has been used in the treatment of amenorrhœa and to excite uterine contractions. It is considered as one of the best of styptics, according to the well-known dictum of John Hunter, and is given in many forms of hemorrhage, especially in those of a passive character, as in purpura and hemophilia. It is not an efficient hemostatic externally. With phosphorus the oil of turpentine which has absorbed oxygen, "ozonized oil," forms, when in the proportion of about one hundred to one, a camphor-like substance which is not poisonous, and is excreted harmlessly by the urine. In phosphorous poisoning the oil should be administered as promptly as possible, in the dose of ten or more drops an hour, in some watery vehicle or emulsion containing no fat.

In general the admixture of oil of turpentine with some other oil, or

in an emulsion, is the most convenient form of administration. Glycerine and a drop of oleum gaultheriæ are said to cover its taste. Capsules may also be used. An emulsion is best made by placing the necessary quantity in a bottle with powdered acacia, shaking it thoroughly until well mixed, and then adding the water.

Dose.—A single large dose, intended to act as a cathartic, or as an adjuvant to another cathartic, or as an anthelmintic, may consist of half an ounce, fifteen grammes, or even more. When given in order to be absorbed and act as a stimulant or alterative to mucous surfaces, from five to twenty drops may be given every three to six hours.

OLEUM THEOBROMÆ.

OIL OF THEOBROMA.

[Butter of Cacao.]

Oleum (*Butyrum*) *Cacao*, P. G.; *Butter of Cacao*, E.; *Beurre de Cacao*, Fr.; *Cacaobutter*, G.

This oil, solid at ordinary temperature, and retaining a little of the chocolate flavor, may be used as a sort of demulcent in inflammation of the tonsils and pharynx. It has been used in chronic affections of the bowels, and externally as a non-irritant application to excoriated surfaces. The only limitation to the dose which can be put into the stomach, is the liability of a large quantity to excite nausea and disgust. Its special use is in the making of suppositories, since these can be kept (preferably in an ice chest) hard enough to be easily inserted and melt in the rectum.

OLEUM THYMI.

OIL OF THYME.

Essence de Thym, Fr.; *Thymianöl*, G.

This oil contains a large proportion of thymol, which has been recently used to replace carbolic acid as an antiseptic. The oil of thyme itself has essentially the same properties and uses as the oils of many other mints, and it might also be used for the same purposes as thymol.

OLEUM TIGLII.

CROTON OIL.

Oleum Crotonis, Br.; *Huile de Croton, Huile de Graines de Tilly*, Fr.; *Crotonöl*, G.

This oil in very small doses is one of the most active of cathartics, and is also a powerful irritant to the skin, producing an eruption of acumi-

nated or rounded pustules, some of which may be umbilicated, lasting for several days, and occasionally leaving behind well-marked cicatrices. The active principles of croton oil have not been successfully isolated. The acrid and externally irritating ingredient is not the same as that which causes purging. The administration of the oil is followed by burning in the throat, nausea, or perhaps vomiting, colic, and watery stools, with some tenesmus. There are usually few other phenomena accompanying the purgation, though in some instances it may fail to act as a cathartic and give rise only to gastric uneasiness, palpitation, headache, and feverishness. In excessive doses the gastro-intestinal irritation may be sufficiently severe to cause death. Croton oil is a drug to be used with much caution. It should not be given in any case until the practitioner has convinced himself that no organic obstacles lie in the way of its action. It is more severe than necessary in ordinary cases of constipation, or when a depleting effect is required, but may be used to unload an extremely sluggish colon. It is used in lead colic. In cases of apoplexy or unconsciousness its small bulk makes it a convenient cathartic. It may be given in enema with some other oil, as castor and olive, or cotton-seed. A reputation as a specific in the cure of sciatica it undoubtedly does not deserve, but may prove very useful in that complaint from its thorough cathartic action. Externally its uses are like those of many other counter-irritants, with the difference that its action is longer continued.

Dose.—One-fourth to two drops, in a pill with bread or with a few drops of olive oil. A sugar-coated cathartic pill will absorb a considerable fraction of a drop, and may have its efficiency thus increased.

OLEUM VALERIANÆ.

OIL OF VALERIAN.

Essence de Valériane, Fr. ; *Baldrianöl*, G.

This oil may be used for the same purposes as valerian itself, although, on account of the absence of valerianic acid, not representing all its activity. An *old* oil contains some valerianic acid.

Dose.—One or more drops, in pill or emulsion.

OPII PULVIS.

POWDERED OPIUM.

OPIUM.

OPIUM.

OPIUM DENARCOTISATUM.

DENARCOTIZED OPIUM.

Crude opium is seldom used in medicine, though occasionally convenient for pill-making on account of its extract-like consistency. The dose would be slightly larger than that of the same specimen in powder, although the limits of morphine contents allowed by the Pharmacopœia in the powdered opium are sufficiently wide to make its dosage somewhat uncertain. The denarcotized opium represents a preparation of known morphine strength half-way between the extreme limits of the powdered opium. The minimum of morphine strength for dried opium, according to the edition of 1870, was ten per cent., no maximum being specified. In the present edition the minimum is stated as twelve per cent., and the maximum as sixteen, which percentages are slightly raised by a change in the method of assay, so as to really call for thirteen to seventeen per cent. If a medium strength of fifteen per cent. be uniformly selected, as has been suggested, and, as is extremely desirable, the dose of opium and its preparations should be decreased by one-third. The change is a proper one, if fully and generally understood; but it should have been, in the case of so important and dangerous a drug, more distinctly pointed out in the Pharmacopœia.

Opium is an extremely complex substance, containing, besides the more ordinary and widely distributed vegetable substances, a large number of peculiar alkaloids, an acid, and an odorous principle not yet thoroughly known. Even the alkaloids are not in all respects well determined, since the same name has been applied by different observers to alkaloids of evidently different character. Some of them are present in so small quantity that they are obtained only from large quantities of residue left in the manufacture of the more important alkaloids. They are mere pharmaceutical curiosities, and do not influence the action of opium. The following are some of the most important constituents with the usual percentage found in opium: Morphine, 12 to 16; codeine, .03; narceine, .02 to 1; narcotine (not alkaline), 1.30 to 10.9; thebaine, 1; papaverine, 1; cryptopine; hydrocotarnine; pseudo-morphine, .02 or less; protopine; laudanine; rhœadine (not alkaline); meconidine; laudanosine; lanthopine (not alkaline); meconic acid, 3 to 4.3.

Of these alkaloids, morphine and codeine are officinal. Narceine has been sometimes used in practice as a mild hypnotic in doses of one-half to three grains. It is followed by quiet sleep, less profound than that from morphine, and producing less disturbance of the digestion and less

disagreeable reaction. Papaverine has been tried as a hypnotic and found efficacious by some observers and inert by others. The other alkaloids have been the subject of physiological experiments, but cannot be regarded as having great clinical importance. Narcotine has been credited with many of the disagreeable effects of opium, but as it does not appear to have these effects, even when given in very large doses separately, and as the ether employed to remove it from the opium deprives the drug also of its peculiar and disagreeable smell, it is probable that the odorous constituent has as much to do with the undesirable effects as the narcotine. Narcotine has been given in large doses (as high as thirty grains, two grammes) without narcotic effects. Antiperiodic virtues have been claimed for it. Meconic acid possesses a medico-legal importance from its distinct and peculiar reaction with chloride of iron, but is probably of no physiological interest.

The action of opium is that of morphine somewhat modified by the other constituents. Codeine and thebaine, as well as several of the less important principles, have a much stronger tendency to produce convulsions than morphine, and probably contribute to render opium somewhat more exciting or "stimulant" than the chief alkaloid alone. Convulsions are very rarely observed after either morphine or opium, but they occasionally occur in children. Opium is more likely than morphine to leave behind it nausea and headache, though this varies with the different preparations, the so-called "denarcotized" agreeing more nearly with morphine. It is somewhat more constipating than the alkaloid, and is often preferred on this account. On the other hand, it is less likely to produce troublesome itching.

The opium preparations are less convenient for subcutaneous injection than a simple solution of morphine. Opium may be given in the form of pill; sometimes, if a slow action is desired, an old pill may be used. Opium, in the form of a suppository, or a pill inserted into the rectum, sometimes gives more relief to local affections than when administered by the mouth. The liquid preparations are given either by the mouth or rectum. They are sometimes applied externally, and seem to have a slightly anodyne effect, although it is doubtful if opium can be absorbed from the *unbroken* skin in sufficient quantity to produce marked effects. Cases, however, of poisoning, even fatal, are alleged to have occurred from the external use. The remarks as to the increase of dose required when the habit of morphine-using is formed, apply in all respects to opium. Opium smoking is a method of administration not often practised for therapeutic purposes. It seems to give the full stimulant effects of opium, and to be an extremely fascinating vice. Possibly the effects of opium when smoked are not precisely equivalent to those observed when it

is taken by the mouth, owing to more or less decomposition of alkaloids by heat.

Dose.—One-fourth to two grains, sixteen milligrammes to thirteen centigrammes (.016 to .13). The dose should be more than proportionally less for children. The change in morphine strength between this and the last edition should not be forgotten in prescribing.

ORIGANUM.

ORIGANUM.

[Wild Marjoram.]

Origan, Marjolaine Sauvage, Fr.; *Dorsten, Wilder Majoran*, G.

This plant, like most other mints, contains a volatile oil, which is no longer officinal. The herb is used chiefly as a condiment, but a warm infusion is used as a carminative and slight anodyne.

Dose.—Indefinite.

PAREIRA.

PAREIRA.

[Pareira Brava.]

This drug contains an alkaloid, pelosine, identical with berberina or buxin. It is by no means certain, however, that it is the active principle. A resin and brown extractive may contribute to its therapeutic effects. It is used in chronic inflammatory diseases of the urinary passages. It may be given in the form of the officinal decoction or fluid extract.

Dose.—Thirty to sixty grains, two to four grammes, in decoction.

PEPO.

PUMPKIN SEED.

Semences de Potirons, F.; *Kürbissamen*, G.

It has been by no means certain to what these seeds owe their undoubted efficacy in the removal of tape-worm, but the active part is probably the endopleuron or greenish envelope immediately surrounding the embryo, which contains a resin, the active principle. This resin is dissolved and rendered more active by the castor oil, which should be given before and after the anthelmintic. The decorticated seeds, as well as the oil derived from them, are bland and unirritating, and their action is unattended by any unpleasant symptoms. They are administered in the form of a paste made by removing the outer coat of the seeds, although

this is said not to be absolutely necessary, beating them with sugar, and diluting with milk or water. The emulsion, which, like all anthelmintics, is to be administered after a fast, should be followed by castor oil in a few hours.

Dose.—One or two ounces, thirty to sixty grammes. Good results are said to have been obtained by the patient's carrying with him a supply of the seeds and eating them from time to time like nuts or confectionery.

PEPSINUM SACCHARATUM.

SACCHARATED PEPSIN.

The Pharmacopœia does not prescribe the method by which the pepsin shall be prepared, but the ingenious and simple process of Mr. Scheffer is that almost universally followed in the United States. Pure pepsin probably has never been seen by any one, and the different articles going under this name are only approximations, and vary greatly one from the other. The addition of the sugar of milk is simply in order to get a product of uniform physiological strength and to make the pepsin into a clean, dry powder easy to dispense. The number of pepsins, both those of officinal strength as well as those claiming to be stronger, and other preparations purporting to contain several or all the digestive ferments, is very large; and, since they are somewhat uncertain and liable to change by keeping, it is to be desired that every physician should satisfy himself before making a change, either by making himself the test directed by the Pharmacopœia, or requesting a chemist to do so for him, that the particular kind he proposes to use is capable of digesting the standard quantity of albumen or fibrin, or the additional amount claimed by the manufacturer. The history of pepsin shows that the fact of a patient digesting better for a time after pepsin is administered, especially if hydrochloric acid is also an ingredient of the prescription, however satisfactory it may be to all parties, it is far from being conclusive as to the physiological activity of the pepsin. Very good results used to be obtained, and probably are so still, from preparations of no value except the moral effect residing in the name. Pepsin represents the digestive ferment of the pig's stomach arranged for easy and pleasing transfer to the one which is considered most nearly to resemble it. It is a ferment and not a solvent, and may in the stomach assist in the transformation of a much larger proportion of albumen into peptone than it can do in the pharmacopœial test.

Its uses are obvious. Dyspepsia is the indication for its use, and is often relieved by it. Pepsin should generally be given not very long after meals, but some patients succeed in making it useful by waiting until the

dyspeptic symptoms arise before taking the dose. The diarrhœa of children, if depending upon a want of digestive power in the stomach, may be well treated thereby; but if the indigestion arises lower down in the intestinal canal this ferment is not appropriate to supply the deficiency. Pepsin has been suggested as an atomized inhalation in membranous croup, with a view to digesting away the membrane by an agent which will not attack living tissues. It has also been injected into the bladder to assist in breaking down a blood clot. Pepsin may be administered dry on a piece of bread, but the more usual method is in a solution with hydrochloric acid, representing approximately the normal composition of the gastric juice. The "Liquor pepsini" of the Pharmacopœia is such a solution.

Dose.—Eight to fifteen grains, one-half to one gramme (.50 to 1). The dose is limited chiefly by the price and bulk of the remedy.

PETROLATUM.

PETROLATUM.

[Petroleum Ointment.]

This series of completely neutral hydrocarbons is destined to almost entirely supersede the animal and vegetable fats in the preparation of ointments, on account of the absence of smell, acridity, and especially of any liability to become rancid. The physician may direct any special ointment to be made with such an excipient.

Petroleum ointments, known under various proprietary names, and differing somewhat in their melting points, are in extensive popular and professional use. They may be used alone as soothing and protective external applications, or combined with disinfectants, for many medical, surgical, and obstetric purposes. For the lubrication of instruments to be introduced into the urethra they are not so good as oil. The physician may prescribe the desired fineness, either by specifying the melting point or using the words "firmer" or "softer," or in Latin abbreviation, "dur." or "moll."

PHOSPHORUS.

PHOSPHORUS.

Although long known as a poison, phosphorus has only recently assumed a somewhat important therapeutic position. Small doses of phosphorus have, according to its apostles, a peculiar influence upon the nervous system, imparting not only rapidity and brilliancy, but originality of thought. They quicken the pulse, raise the temperature, promote perspiration, and often excite sexual desire. Larger doses rapidly derange

digestion and excite vomiting. Poisoning is characterized by vomiting, which may soon become bloody, coming on some hours after the ingestion of the poison, epigastric and abdominal pain, diarrhœa, perhaps bloody, and with the discharges containing phosphorescent material, followed by a train of severe nervous symptoms presenting nothing very characteristic, but indicating a profound affection of the whole system, collapse, and death. Blood may make its appearance in the urine, stools, mucous surfaces, or skin. The urine contains albumen and casts, and jaundice appears. The most characteristic post-mortem appearances, besides the gastric and intestinal ulcerations, which are not invariably present, are the ecchymoses and the fatty degeneration of the stomach tubes, liver, kidneys, and heart.

Chronic phosphorus-poisoning is characterized by dyspepsia, bronchial irritation, formication, stiffness and numbness of the limbs, softening and ulceration of the gums, and, most characteristic of all, necrosis of the jaw-bones, which may become very extensive. This symptom does not occur if there are no carious teeth. In match factories the workmen are sometimes provided with bottles of the oil of turpentine, to be worn so as to inhale the vapor as an antidote to the phosphorus.

Small doses of phosphorus promote the growth of osseous tissue, which, if lime is withheld, is soft, but if the lime salts are present, is solid bone. The medical uses of phosphorus are chiefly in affections of the nervous system, the waste of which it seems to be taken for granted the administration of phosphorus can counterbalance. It would require too much space to show upon how very slender a foundation this assumption rests. Phosphorus has been used, and with alleged advantage, in various conditions of mental weakness and decay, such as senile dementia and melancholia. The claims made for it as specially useful in locomotor ataxy are now abandoned, and the same may be said of leucocythæmia. In neuralgia the claims have a little more substantial foundation in actual experience; but as the remedy does not seem to gain the general approbation of practitioners, although opportunities for trial are not rare, and especially as the doses said to be necessary border closely on the poisonous, it should certainly not be the first remedy tried. It has been used in some skin diseases. In poisoning by phosphorus, it should be remembered that its irritant action in the stomach, if unoxidized, is small, but that its harmful effects are produced after it has entered the blood. No oily substance should be given. An emetic of sulphate of copper should be administered and followed by non-rectified spirit of turpentine. After the first twelve hours the treatment must be directed to the symptoms as they arise. The administration of phosphorus presents some difficulties on account of its difficult solubility and its taste. The oil and pills are officinal. A

tincture, nearly saturated, may be made with four hundred parts of absolute alcohol and diluted with glycerine, so that one decigramme of phosphorus, forty grammes of tincture, will correspond to one hundred cubic centimeters of the mixture, which may be flavored with a little oil of peppermint.

Dose.—One-sixtieth to one-tenth of a grain (.001 to .006). Of the glycerine mixture just mentioned, one cubic centimeter will correspond to one milligramme, or the sixtieth of a grain, a *small* dose. Five cubic centimeters, or a full teaspoonful, will give one-twelfth of a grain, or five milligrammes, a *large* dose. Anything over a teaspoonful will be a very large dose. Larger doses than these have been given ; but, on the other hand, doses smaller than the largest mentioned here have caused trouble.

PHYSOSTIGMA.

PHYSOSTIGMA.

[Calabar Bean.]

PHYSOSTIGMINÆ SALICYLAS.

SALICYLATE OF PHYSOSTIGMINE.

The ordeal bean of Calabar is said to have been used among the native Africans as combining the functions of judge and executioner. A suitable quantity being administered to the accused, if it were vomited his innocence was established ; while if not, he died of the subsequent symptoms, and was supposed to be justly punished. It is possible that the different results may have been due to the differing proportion of the seed coats administered, perhaps by favor of the executioner, since these are considerably less poisonous and more emeto-cathartic in their action than the embryo.

The chief symptoms from the use of Calabar bean in man are nausea and vomiting, increased peristaltic movement of the intestines, giddiness, contraction of the pupil, and muscular weakness, sweating, and from time to time dyspnœa, and irregular and enfeebled action of the heart. Consciousness is not lost, and there are no convulsions. In poisoning the pupils are not invariably contracted. In other mammalia, poisoning begins with muscular twitchings, which may last for a long time. Voluntary and reflex control of the muscles is lost, as well as sensibility to pain, but not to touch. In fatal cases the heart beats for some time after the cessation of respiration.

When preparations of physostigma are placed in the conjunctiva, extreme contraction of the pupil and spasm of the accommodation, attended with some pain, take place. These symptoms do not last so long as the dilatation produced by atropia. The phenomena above described are referable to loss of power in the gray matter of the spinal cord; the brain, the muscles, and the conducting portion of the cord being unaffected. Certain ganglionic centres are probably stimulated for a time previous to this paralysis, as is indicated by the vomiting and purging and the initiatory muscular twitching. The therapeutic uses are based on this view. Tetanus has been treated by Calabar bean, and, making due allowance for the fact that many of the cases were not brought under its influence until late in the disease, and also that the commercial preparations are not of uniform strength, the success seems encouraging. In convulsive diseases, dependent upon increasing reflex excitability of the cord, its use is clearly rational. In chorea it is of little value. Preparations of physostigma have been used with cathartics to increase the peristaltic action of the intestines. In ophthalmic practice it is used to contract the pupil in some cases of adhesion of the iris, and to counteract the excessive action of belladonna. Its range of usefulness, however, in this department, is much less than that of atropine. Physostigma is an antidote to the general action of atropine within certain narrow limits; but the limits are so narrow, and poisoning of dangerous intensity from atropine so rare that this application is of very little importance.

In poisoning by the bean, atropine should be injected subcutaneously to counteract the depressing effect on the heart and respiration, and followed by general stimulants like heat, ammonia, and alcohol. In regard to the danger of poisoning from the bean itself, it may be remarked that of sixty children poisoned at the same time by eating it only one died. The salicylate of physostigma is selected from the other salts which may be formed, for introduction into the Pharmacopœia, on account of its greater stability. It is sufficiently soluble to make a convenient hypodermic injection. When used to produce constitutional effects it should be administered at short intervals until its physiological or therapeutic effect is perceived, and repeated often enough to keep up the impression.

Dose.—Of the bean, one grain, six centigrammes (.06); of the extract, one-tenth of a grain, six milligrammes (.006); of the tincture, twenty-five drops. These are commencing or minimum doses; the working dose is to be ascertained by trial in each case. Of the alkaloid, one-sixtieth to one-twelfth of a grain, one to five milligrammes (.001 to .005). There is a commercial extract-like physostigmin, about three times as strong as the bean.

PHYTOLACCÆ BACCÆ.

PHYTOLACCA BERRY.

[Poke Berry.]

PHYTOLACCÆ RADIX.

PHYTOLACCA ROOT.

[Poke Root.]

It is not known upon what the activity of this plant depends. It is a slow and persistent emeto-cathartic, with some narcotic properties, as shown by the occurrence of drowsiness, vertigo, and dimness of vision. It is also considered alterative, and has been used in rheumatism. There are no officinal preparations. A saturated tincture and a saturated decoction of the berries have been used, the former in the dose of a wineglassful, and the latter in that of a fluidrachm. Ointments have been used externally.

Dose.—Of the dried root eight to thirty grains (.50 to 2) as an emetic; as an alterative, one to five grains, six to thirty centigrammes.

PICROTOXINUM.

PICROTOXIN.

The berries (cocculus Indicus) from which this substance is derived have been employed to poison fish. It is commonly stated that they are used in beer. In dogs picrotoxine gives rise to vomiting, muscular tremors, and convulsions; in man, to gastro-intestinal irritation, giddiness, and partial paraplegia. It has been used in medicine somewhat in the same way with strychnine, but is at present little employed. It has been recently given in the night-sweats of phthisis. It is applied externally as a parasiticide in the form of ointment, ten grains to the ounce, two per cent., or as a decoction; or an ointment of the berries may be used. These preparations should be cautiously applied if there is any abrasion of the surface.

Dose.—One to four minims of a solution of one to two hundred and forty of water, one two-hundred-and-fortieth to one-sixtieth of a grain, one to four milligrammes.

PILOCARPINÆ HYDROCHLORAS.

HYDROCHLORATE OF PILOCARPINE.

PILOCARPUS.

PILOCARPUS.

[JABORANDI.]

This recently discovered drug and its officinal alkaloid manifest physiological power, not shared by any other known agent. A moderate dose of pilocarpine injected subcutaneously gives rise at first to a little local perspiration just over the puncture ; then the skin generally becomes somewhat reddened, moist, and in a few minutes wet, with large amounts of perspiration which may run off in streams. At the same time the salivary secretion is greatly increased, so that it may run from the mouth and almost prevent the patient from talking. The bronchial moisture and the conjunctival secretion are increased. The urine is diminished in quantity when the drug is given this way ; if in small doses, several times repeated, it acts as a diuretic. This effect of the large dose takes place without any very material affection of the general condition, except that the pulse becomes quick and bounding, corresponding to a diminished vascular tension, and in some cases the heart is weakened. The external temperature is at first a little raised and afterward a little diminished, the change in both cases being merely in the distribution and not in the production of heat. These effects reach their height in about half an hour, and continue for two or three hours, leaving behind no unpleasant effects, except some fatigue, and, in exceptional cases, a painful swelling of the salivary glands. The urinary solids may be found in the perspiration in considerable quantity, and are correspondingly diminished in the urine.

The action of a decoction or fluid extract of jaborandi differs from that just described only in some liability to produce nausea, a little delay at the beginning of the sweating, and a greater tendency to produce dilatation of the pupil, probably due to another alkaloid, jaborine, which is akin in many respects to atropine. A second administration usually produces less marked effects, and after several sudations at short intervals the secreting structures lose their ability to respond to the stimulus. In its action on the secretions pilocarpine is exactly opposed to atropine, and, although by both the pulse is quickened, yet the vascular tension is influenced in opposite directions. Pilocarpine, especially if locally applied, contracts the pupil. In jaborandi the action of pilocarpine more than neutralizes the effect of the opposing alkaloid, jaborine.

Pilocarpine is used to obtain a massive effect, and not that milder and continued action of the skin produced by many other drugs. It may be employed, like the domestic herb-teas, the hot punch, or the opiate powder, to break up a " cold " in its incipient stage, but it is usually more power-

ful than is necessary for this purpose. The withdrawal of water from dropsical effusions may be accelerated to a certain extent by sudation ; but the relief of so-called uræmic symptoms is a much more important function, and impending convulsions or coma may occasionally be warded off by a thorough sweating. It is known that many of the urinary constituents are carried off in the sweating of jaborandi, and that unknown one on which uræmia depends is probably included. Jaborandi under these circumstances is not absolutely free from danger. A comatose patient, if care is not taken, may not free himself from the excessive secretions and be suffocated by his own saliva. The depressing effect on the heart, sometimes noticed, should be looked out for and provided against by stimulants, such as ammonia and alcohol. If this symptom were to become dangerous, the proper antidote would be atropine subcutaneously. Jaborandi may give great, but unfortunately only temporary, relief in distressing dryness of the throat. It was at one time hoped that the excessive secretion of the glands provoked by jaborandi might be the means of dislodging the false membrane of diphtheria, but the much-longed-for agent which can do this is yet to be found.

Dose.—Of pilocarpine, one-eighth to one-third of a grain, eight to twenty milligrammes (.008 to .020), subcutaneously; by the mouth, a little more ; of the leaves, thirty to ninety grains, two to six grammes, in infusion not strained.

PILULÆ ALOES.

PILLS OF ALOES.

It would have been better to divide the pill mass into twice or four times as many pills as are here directed, since for use in habitual constipation it is well to divide the dose of aloes, in order that it may be gradually reduced. They are not appropriate for use as a purgative.

Dose.—One pill per diem.

PILULÆ ALOES ET ASAFŒTIDA.

PILLS OF ALOES AND ASAFETIDA.

In constipation with flatulence.

Dose.—Two to five pills.

PILULÆ ALOES ET FERRI.

PILLS OF ALOES AND IRON.

Pilulæ Italicæ Nigræ.

Better suited than the simple pills of aloes for the treatment of habitual constipation, especially if connected with anæmia and amenorrhœa.

Dose.—One pill once or twice a day.

PILULÆ ALOES ET MASTICHES.

PILLS OF ALOES AND MASTIC.

[Lady Webster's Dinner Pills.]

Pilulæ ante Cibum ; Pilules des Gourmands.

Have no advantage, except a slower solubility, over the simple aloes.

Dose.—A pill once a day.

PILULÆ ALOES ET MYRRHÆ.

PILLS OF ALOES AND MYRRH.

[Rufus's Pills.]

Pilulæ Rufi.

Supposed to be useful in amenorrhœa. The dose is to be regulated by the cathartic action of the aloes, and is not influenced by the myrrh.

Dose.—One pill once or twice a day.

PILULÆ ANTIMONII COMPOSITÆ.

COMPOUND PILLS OF ANTIMONY.

[Plummer's Pills.]

Compound Calomel Pill.

These pills may produce the specific effect of mercury, and be used accordingly.

Dose.—One or two pills twice a day.

PILULÆ ASAFŒTIDÆ.

PILLS OF ASAFETIDA.

Dose.—One to three pills.

PILULÆ CATHARTICÆ COMPOSITÆ.

COMPOUND CATHARTIC PILLS.

Antibilious Pills, E.; *Abführpillen*, G.

There are a few persons who are affected by the small portion of mercurial contained in these pills. If too frequently repeated, they might cause salivation. They are among the most useful of cathartics, but are preferably used for a full purgative action rather than as laxatives.

Dose.—One to three pills.

PILULÆ FERRI COMPOSITÆ.

COMPOUND PILLS OF IRON.

Pilules de Griffith.

These pills are very similar to the well-known "Mistura ferri composita." They may be used in cases of amenorrhœa and anæmia where no constipation exists.

Dose.—Two to six pills two or three times a day.

PILULÆ FERRI IODIDI.

PILLS OF IODIDE OF IRON.

Pilules de Blancard, Fr.; *Eisenjodür-Pillen.*

These pills differ from the well-known "Blancard's pills," by not being covered with an outside coating of reduced iron, which seemed to protect the interior, not only from oxidation, but from the solvent action of the gastric juice; since after a prolonged administration, from which the patient was supposed to have greatly profited, a large alvine evacuation has in some instances restored nearly all, by actual count, which had been taken. They are simply another form for giving iron.

Dose.—One or two pills two or three times a day.

PILULÆ GALBANI COMPOSITÆ.

COMPOUND PILLS OF GALBANUM.

Have been used in pulmonary and uterine catarrh, and in hysteria.

Dose.—Two to four pills.

PILULÆ OPII.

PILLS OF OPIUM.

Each pill contains a grain, or six centigrammes, of opium. For local gastric pain an old opium pill is sometimes better, on account of its slow solubility, than a new one.

The **Dose** is to be regulated on the general principles spoken of under "Morphina" and "Opium." The increased morphine value of opium in the present edition should not be overlooked.

PILULÆ PHOSPHORI.

PILLS OF PHOSPHORUS.

Each pill contains the hundredth part of a grain, six-tenths of a milligramme (.0006). If large doses are to be given, it would be well to select some other preparation, as the "phosphorated oil" or the tincture described under "Phosphorus."

The **Dose** is to be regulated as stated under "Phosphorus," and from one to five pills may be given three times a day.

PILULÆ RHEI.

PILLS OF RHUBARB.

Each pill contains three grains, about twenty centigrammes (.20), of rhubarb. They are mildly laxative.

Dose.—One to three pills.

PILULÆ RHEI COMPOSITÆ.

COMPOUND PILLS OF RHUBARB.

Laxative and cathartic. To be used in habitual constipation. Each pill contains two grains, thirteen centigrammes (.13), of rhubarb and three-fourths of this amount of aloes.

Dose.—One to four pills.

PIMENTA.

PIMENTA.

[ALLSPICE.]

Allspice is used as a condiment in cookery. As a medicine, it is a carminative or mild intestinal stimulant, which is more frequently given with tonics and cathartics than alone. An infusion may be used, but the officinal oil is more convenient.

PIPER.

PEPPER.

[Black Pepper.]

PIPERINA.

PIPERINE.

Pepper owes its smell to a volatile oil; its pungent taste partly to a resin and partly to an alkaloid piperina. Pepper is an irritant when applied to the skin, and internally resembles other aromatics. It is largely used as a condiment. In medicine it is sometimes employed as a counter-irritant or as a local stimulant. Pepper and its alkaloid have a certain efficacy in intermittent fever, especially in the older cases, either alone or administered with quinine.

Dose.—In substance, five to twenty grains, thirty to one hundred and thirty centigrammes (.30 to 1.30). The peppercorns may be eaten as an antiperiodic. Of piperine, one to ten grains, six to sixty-four centigrammes (.06 to .64).

PIX BURGUNDICA.

BURGUNDY PITCH.

Poix de Bourgogne, Poix Blanche, Fr.; *Burgunder Harz (Pech)*, G.

This pitch is used exclusively as an external application in the form of a plaster. It is slightly irritating, and has that amount of efficacy in various chronic inflammations which comes from support and protection of the parts with some congestion of the skin. A hairy part should be shaved before applying an adhesive plaster, and the plaster should be warmed before an attempt is made to remove it. A little oil of turpentine, between the raised edge of the plaster and skin, will facilitate its removal if very tightly adherent.

PIX CANADENSIS.

CANADA PITCH.

[Hemlock Pitch.]

This may be used to make plasters, but is a little softer than the preceding. A volatile oil distilled from it or the hemlock branches resembles closely the other volatile oils derived from the coniferæ, and might be used internally in much the same way as oil of turpentine.

PIX LIQUIDA.

TAR.

Resina Empyreumatica Liquida—Goudron, Goudron Végétal, Fr.; *Theer*, G.

Tar is a very complex mixture of resins and hydrocarbons, of which the two which most distinguish it from other resins are creasote and carbolic acid. It is probably to these that its irritant action on the skin is largely due. When taken internally, tar gives rise to more or less gastro-intestinal irritation, sometimes attended with headache, giddiness, and febrile symptoms. In the process of elimination through the kidneys it may give rise to irritation and increased diuresis. Many of these symptoms can also be produced by its application over a large surface of the body. Tar-water and oil of tar also produce similar symptoms, and the latter preparation has caused death, with appearances not unlike those observed in carbolic-acid poisoning. Tar is used externally in the form of ointment, or, unmixed, in various skin diseases, especially eczema, psoriasis, and scabies. Tar is taken internally in the form of tar-water, and also as an atomized inhalation in pharyngitis, laryngitis, and even bronchitis. Its vapor, produced by gentle heating over a lamp, may also be inhaled in the latter affection. Its internal use has been recommended in bronchial catarrh and phthisis, as well as in some of the cutaneous diseases in which its external use has been mentioned. The sensitiveness of different patients to tar seems to vary within wide limits. Tar may be administered in capsules or in pills made with wax and some vegetable powder, or with magnesia. Tar-water, made by agitating a pint of tar with four pints of water, decanting and filtering, can also be used in the quantity of one or two pints per diem.

Dose.—In substance, five to twenty-four grains, thirty to one hundred and fifty centigrammes (.30 to 1.50).

PLUMBI ACETAS.

ACETATE OF LEAD.

[Sugar of Lead.]

Sel (Sucre) de Saturne, Fr.; *Essigsaures Bleioxyd, Bleizucker*, G.

Acetate of lead in large doses is an irritant poison, which may in animals, after the acute stage has gone by, give rise to the symptoms of chronic lead disease, especially the paralyses. In man, however, the chronic symptoms are not developed from the single dose, which produces a sense of constriction in the mouth, abdominal pain, diarrhœa, fever, and scanty urine, and is almost always recovered from. Long-continued medi-

cinal use of a salt of lead may, of course, give rise to the chronic effects, such as the blue line on the gums, colic, paralyses, and cerebral symptoms; but, as a matter of fact, this is of excessively rare occurrence, probably for the reason that it is never given long enough at a time to develop these effects. In a case of acute poisoning, emetics should be given, with sulphate of magnesia, in order to produce an insoluble sulphate with the lead. Acetate of lead is used as an astringent in diarrhœa and dysentery, and has the great advantage, especially for children, that its taste is not disagreeable. It is said to check the too abundant sputa and the sweating of phthisis. It is employed as a styptic in hemorrhages from the lungs, kidneys, uterus, and bowels, but is probably not the most efficient drug which can be used for this purpose. Its astringent and sedative effect is supposed to have cured aneurism. Externally it is used as a lotion for contusions and excoriations, but should not be continued too long for fear of absorption. A lead wash is one of the best local applications in ivy (Rhus toxicodendron) poisoning. It is better not to employ acetate of lead as a collyrium, since, if ulceration of the cornea be present, a deposit may take place which will cause permanent opacity.

Dose.—In hemorrhage, one to five grains, six to thirty centigrammes (.06 to .30), every hour. In diarrhœa, one grain, six centigrammes (.06), every two or three hours in pill; or for children, a fraction of this dose in powder with sugar of milk. For colliquative sweats, two grains, twelve centigrammes (.12), two or three hours before they are likely to appear.

PLUMBI CARBONAS.

CARBONATE OF LEAD.

[White Lead.]

Cerussa, P. G.; *Céruse*, Fr.; *Bleiweiss*, G.

When mixed with oil this is the ordinary white paint, and undoubtedly gives rise in the process of manufacture to many cases of lead poisoning. It is used only as an external application in the form of powder or officinal ointment, and should not be continued too long, especially on an abraded surface. White paint may be used as an application to burns.

PLUMBI IODIDUM.

IODIDE OF LEAD.

Used externally in the form of an ointment, which has no particular advantage except its color.

PLUMBI NITRAS.

NITRATE OF LEAD.

Salpetersaures Bleioxyd, Bleisalpeter, G.

Used as an external astringent and deodorizer in gangrene, ozæna, sore nipples, and onychia. Solutions up to one per cent. may be employed. It has been used as a disinfectant for drains, bilge-water, etc., on account of its affinity for sulphuretted hydrogen, but its expensiveness is a disadvantage for this purpose.

PLUMBI OXIDUM.

OXIDE OF LEAD.

[LITHARGE.]

Lithargyrum, P. G.; *Litharge*, E.; *Bleiglätte*, G.

Litharge is used to make lead plaster, and sometimes as an external application mixed with oil.

PODOPHYLLUM.

PODOPHYLLUM.

[MAY APPLE.]

Mandrake Root, E.; *Fussblattwurzel*, G.

Podophyllum contains a resin, upon which its cathartic action depends; the absence of berberina and any other alkaloid seems to be conclusively demonstrated. Its powder is irritating to the air-passages when inhaled. The drug is said to produce its characteristic effects when applied to an ulcer. In small doses podophyllum is a laxative; in large ones a vigorous, but slowly acting cathartic, which seems, on a basis both of clinical observation and physiological experiment, to have the power of stimulating the flow of the bile more than many other cathartics. The resin is much more commonly employed than the crude drug. It is often combined with other cathartics, like colocynth or aloes.

Dose.—As a laxative, half a grain, three centigrammes (.03); as a purgative, ten to twenty grains, sixty to one hundred and thirty centigrammes (.60 to 1.30).

POTASSA.

POTASSA.

Kali Causticum Fusum, P. G.; *Lapis Causticus Chirurgorum*, E.; *Potasse Caustique*, Fr.; *Ætzkali*, G.

Caustic potassa is used for some surgical and gynæcological purposes where it is desired to break down morbid or cicatricial tissue, or occasionally for opening an abscess or bubo where there is danger of hemorrhage. Its uses are, however, very limited. Dissolved in water it may be used to make solutions of a strength greater than that of the "Liquor potassæ," if such are desired, for external application. Its action should be carefully guarded by placing around the part to be attacked cotton soaked in vinegar or a piece of sticking-plaster. For any internal use a solution may be prescribed, although the "Liquor" is far stronger than could possibly be given undiluted, and, in fact, there are few purposes for which such a solution could be advantageously employed.

Crude potassæ or lye accidentally swallowed may cause irritant poisoning and death. The antidote is a weak acid, as acetic or tartaric.

POTASSA CUM CALCE.

POTASSA WITH LIME.

This is merely a dilution of the preceding preparation, for external use. The powder may be made into a paste with a little alcohol, and applied with the same precautions as in the case of potassa.

POTASSA SULPHURATA.

SULPHURATED POTASSA.

[Potassii Sulphuretum, *Pharm.*, 1870.]

Liver of Potash, E.; *Foi de Soufre*, Fr.; *Kalischwefelleber*, G.

This odoriferous drug is seldom used internally in any of the large number of diseases for which it was once recommended. It might have, perhaps, the same effect upon suppuration as the "sulphurated lime," but it has not been thus used. It has been employed externally, in skin diseases and mucous discharges, in the form of ointment or lotion. Baths have also been used, which irritate the skin and cause sweating and slight cutaneous eruptions. They have been found useful in rheumatism and other chronic diseases. Four ounces of the salt is a proper quantity for a full bath. An ointment may be made of sixteen per cent.

Dose.—Internally, three to ten grains, twenty to sixty-five centigrammes (.20 to .65).

POTASSII ACETAS.

ACETATE OF POTASSIUM.

Terra Foliata Tartari, E.; *Essigsaures Kali*, G.

This preparation is an active diuretic, being decomposed either in the intestinal canal or in the blood, appearing in the urine as a bicarbonate and rendering it alkaline. It is, for all action on the blood, equivalent to a carbonate, with less disturbing effect upon the stomach. Small doses have a diaphoretic effect, and large ones may in some persons act as a cathartic. The uses of acetate of potassa are therefore double. Simply as a diuretic, often combined with others more stimulating, it is employed in dropsy of various kinds, from nephritis and from disease of the liver and heart, in the latter case the combination with digitalis being most appropriate. It is used as an antacid in gout, rheumatism, and various cutaneous affections, especially if connected with the uric acid diathesis. For these cases, however, lithia salts have some advantages. In the treatment of acute rheumatism the potassa salt should be rapidly pushed until the urine is distinctly alkaline, and the dose then diminished. The extreme alkalization should be stopped as soon as prudent, and tonics, such as iron and quinine, be substituted. An extemporized acetate may be made by neutralizing the bicarbonate of potassium with vinegar, the mixture, which may also be sweetened, to be drunk during effervescence.

Dose.—In acute rheumatism, one-half ounce to one ounce, fifteen to thirty grammes, in solution in divided doses, will probably be required in twenty-four hours; but the real guide should be the reaction of the urine, which should be tested from time to time with litmus paper. As a diaphoretic, ten grains, sixty centigrammes (.60), should be given at short intervals.

POTASSII BICARBONAS.

BICARBONATE OF POTASSIUM.

Doppel-Kohlensaures Kali, G.

This salt has essentially the same action in the blood as the last, and may be used for the same purposes, but is more likely to disorder the stomach if given in large doses. It is more useful when the acidity which it is desired to neutralize arises from the primæ viæ, and it is better to reserve the carbonate for such cases, and employ the acetate when it is simply desired to increase the alkalinity of the blood or urine. A solution may be used externally.

Dose.—Fifteen to sixty grains, one to to four grammes.

POTASSII BICHROMAS.

BICHROMATE OF POTASSIUM.

Doppel-Chromsaures Kali, G.

Bichromate of potassium has hardly any medicinal use except as an escharotic milder than chromic acid. It is largely used for the hardening of anatomical specimens and in some forms of galvanic battery. It is an antiseptic.

POTASSII BITARTRAS.

BITARTRATE OF POTASSIUM.

Tartarus Depuratus, P. G.; *Cremor Tartari, Acid Tartrate of Potash*, E.; *Pierre de Vin*, Fr.; *Weinstein*, G.

Cream of tartar is laxative in a single large dose taken without much water, but a saturated solution in divided doses is diuretic. Excessive doses (four or five tablespoonfuls) of the salt may cause poisoning, with vomiting, purging, collapse, and death. As a cathartic, cream of tartar is seldom used alone, but with the milder drugs as a laxative, or with jalap as a hydragogue. The solution as a cooling drink may be sweetened and flavored, or if it is desired to increase its diuretic effects it may be combined with some more stimulating vegetable infusion, as broom, juniper, buchu, or others.

Dose.—As a cathartic, one-half an ounce to an ounce, fifteen to thirty grammes. The cream-of-tartar-water may be taken at intervals to the extent of two pints a day.

POTASSII BROMIDUM.

BROMIDE OF POTASSIUM.

Kalium Bromatum, P. G.; *Bromkalium*, G.

Bromide of potassium has a disagreeable strongly saline taste, and in large dose and too strongly concentrated solution, is likely to cause nausea or some pain in the stomach. It is absorbed from the stomach and rectum, and in small quantity from the skin in a cold bath. It is eliminated unchanged, chiefly by the urine. Small doses of the bromide, even several times repeated, give rise to no very marked effects, except sometimes to a little quietude, diminution of restlessness, and if the patient is perfectly quiet and undisturbed, a slight inclination to sleep. There is no effect upon the pulse, except that which goes with rest. Upon the

pupils or upon the secretions, none, except perhaps a little diuresis. Larger doses, fifteen to ninety grains, one to six grammes, produce, according to the susceptibility of the person, a more or less decidedly quieting effect, and sleep is more sound and less liable to be disturbed by noises or trifling interruptions. A person sleeping under the influence of a full therapeutic dose can, however, be roused without difficulty. A not unpleasant prickling or tingling sensation over the whole body, about half an hour after the dose, has often been experienced by the author. There are no unpleasant sensations or depression on awaking, but usually a copious flow of urine. Acute fatal poisoning from the bromide alone is unknown. In an unpublished case communicated to the author, four ounces of bromide, taken within forty-eight hours, was followed by profound comatose sleep, and marked cutaneous anæsthesia, and inability to swallow, lasting for fourteen days. The pulse was at first about 80, and strong, but afterward became feeble. The respiration was also feeble. After some days large quantities of mucus collected in the fauces.

The most decided effects are those which follow a continued dose. Among them are acne, diminished reflex sensibility of the fauces, and of the genito-urinary organs; a slow and feeble pulse, aphonia, nauseous breath, congestion of the fauces, a hoarse cough, tottering gait, with a feeling of great weakness on trying to walk; loss of mental activity, though this is rather a want of desire than of ability to think, and, finally, some hallucinations, and mildly maniacal attacks. Death is not certainly known to have occurred from bromide of potassium alone. Attention has been called to the great similarity which may exist between chronic bromism and the general paralysis of the insane, and the possibility of bromism obscuring and complicating the symptoms of cerebral disease in such a way as to lead to an unduly serious prognosis. Besides acne, an ecthyma-like eruption and cutaneous ulcers very difficult to heal so long as the bromide is continued, may make their appearance. The administration of Fowler's solution or of tincture of cinchona is said to diminish the liability to these troublesome eruptions.

This bromide is undoubtedly a general nervo-muscular sedative, with a peculiar affinity for the reflex-motor and cerebral centres. The theory has been held that its action is largely due to its contracting the smaller blood-vessels, thus rendering the tissues anæmic and unable to perform their functions. It is much more probable that the anæmia is the result than the cause of functional inactivity. It has also been suggested that bromide of potassium produces its effects solely as a potash salt, and that all its symptoms are to be explained by the depressing action which all potassa salts in very large doses exert upon the heart. It is possible that the potassium does have an effect upon the heart when the salt is given in

very large doses; but the amount of any potash salt required to act notably on the heart is larger than the ordinary doses of the bromide, and no other potash salt produces the same effect upon the nervous system. Moreover, the action of bromide of potassium is like, though probably more intense than, that of the other bromides and of hydrobromic acid.

The uses of bromide of potassium cover a great multitude of diseases, but the indications for its exhibition are quite definite. Nervous over-excitability may be stated in a general way as the condition calling for it.

The following are some of the special conditions in which experience has shown it to be of value: In headache, especially if arising from overwork or excitement, or occurring in the course of continued fevers, a single dose, or better, two or three at short intervals, and amounting to from four to eight grammes altogether, may give great relief, especially if it be possible to administer the doses at or near bedtime, when the patient is no longer liable to disturbances. In sleeplessness occurring under similar circumstances to those mentioned, the bromide may be given in the same way, although it may often require the assistance of some more powerful drug. In delirium tremens and that condition of "nervousness" immediately preceding its complete development, chloral and bromide are often given, the latter being in double proportion, and the dose being regulated chiefly by the chloral. For the noisy and restless insane the bromide alone, or in the combination just named, or with cannabis Indica, is of great value; but insanity with depression or melancholia is not so likely to be benefited. If pain is present, opium may be indicated, and the bromide, under these circumstances, sometimes converts the painless but sleepless night into a much more refreshing period of slumber. The bromide is one of the best corrigents of morphine, and should be given, if possible, two or three hours in advance of the opiate. Genital excitability may be much influenced by the continued dose, which is to be employed in spermatorrhœa, in hysteria, and in some kinds of neuralgia connected with disturbances of the sexual function. The nervous disturbances attending the change of life are greatly relieved by it. In ordinary neuralgia it is not likely to be of much value. In some spasmodic affections, such as tetanus and strychnia poisoning, it would be clearly indicated, if it were not for the slowness of its action relative to the rapidity of the poison or the disease. Tetanus, however, has been very successfully treated by it, and even a case of strychnia poisoning. Various spasmodic diseases of children, such as chorea and whooping-cough, have been benefited by it in conjunction with other drugs, especially tonics. Convulsions are often treated by it, though generally more powerful and rapidly acting drugs are used in its place or with it.

Epilepsy is the most signal triumph of this drug, especially the cases where the fits are fully developed and occur in the daytime. *Petit mal* and nocturnal epilepsy, though perhaps favorably influenced, are not so fully controlled by it. In the former cases, a few are cured permanently, others for a greater or less number of years or months. Others have no fits so long as the bromide is continued, and almost all have the number of fits much diminished, while a small minority receive no benefit. In epilepsy the bromide is to be given until the symptoms are distinctly checked, or the condition of bromism becomes not only unpleasant but dangerous. It must be continued, supporting the patient's general health in the meantime, for months or years. The action of bromide upon the heart, either direct or through the spinal centres, is often of value, as in nervous palpitation or in exophthalmic goitre.

According to Rabuteau, the bromides have the same effect in hastening the elimination of metallic poisons (mercury and lead) that is possessed by the iodide. Bromide of potassium, which still holds, in spite of its disagreeable taste, the place at the head of the list of bromides, must be administered in solution, by the mouth or rectum. Its saline taste may be diminished by the addition of bicarbonate of sodium in about half its quantity, and the taste can be partly concealed by elixirs or syrups, but a large dose cannot be made very agreeable.

The **Dose** has been alluded to in the preceding lines. It may be stated as varying from half a gramme to seven grammes, two or three times a day. Even larger doses have been given for some days at a time. If the drug is intended to produce sleep, or control symptoms present, more especially in the night, the doses may be given from the latter part of the afternoon until bedtime.

POTASSII CARBONAS.

CARBONATE OF POTASSIUM.

Carbonate de Potasse, Fr.; *Kohlensaures Kali*, G.

This salt is much less irritating than "potassa," but more so than the bicarbonate. For all purposes of internal administration it is better to use the latter. Its uses and action, with the exception just noted, are the same. It may be used externally in the form of baths, which are antacid and irritant. A lotion of one hundred and twenty grains to the pint (one and one-half per cent.) might be used in skin diseases.

The **Dose** should be a little less than that of the bicarbonate.

POTASSII CHLORAS.

CHLORATE OF POTASSIUM.

Kali Oxymuriaticum, E.; *Chlorate de Potasse*, Fr.; *Chlorsaures Kali*, G.

Chlorate of potassium has been used in medicine on the theory that it readily parts with the oxygen, of which it contains so large a proportion, to the advantage of the blood and the tissues. There is no reason to suppose that it is really decomposed in this way; but it is absorbed and eliminated unchanged by all the secretions, though chiefly the urine, which it increases in quantity. Small doses produce no marked symptoms, but large ones give rise to gastro-intestinal irritation and a peculiar nephritis, with scanty and dark urine. It has recently been shown that the dark urine is due to decomposed blood which blocks up the renal tubes, or is discharged in the form of peculiar blood casts. In large doses it has a depressing effect on the heart. Its principal use is as a deodorizer and detergent wash, gargle, or injection, which may be applied to any ulcerating surface, but is specially used in all forms of stomatitis—mercurial, syphilitic, aphthous—or of pharyngitis, acute and chronic. It may be used as an injection in the nasal cavities. Its internal use is of comparatively little importance, although it has been administered by the stomach in almost all the diseases in which it was found useful as a local application, and in many others, chiefly on the basis of the theory stated above. It has been supposed to be of benefit in ovarian tumors and in malignant disease, and also to prevent threatened abortion. Its *modus operandi* in these cases is obscure, to say the least. Chlorate of potassium should not be prescribed in the dry condition with any organic or easily oxidizable substance, such as sugar, sulphur, tannin, hypophosphite of sodium, or potassium. Strong acids will decompose it, and the same is true of an acid sulphate. Iodide of potassium should not be given with it, for fear of the formation of the poisonous iodate. It is best given in solution, though its powder without admixture could be taken without much difficulty. As a wash and gargle a solution saturated at an ordinary temperature may be properly used. For a local application in the mouth it may be melted and run into a bullet mould, and the mass be allowed to dissolve in the mouth.

Dose.—Ten to thirty grains, sixty-five centigrammes to two grammes (.65 to 2), once in three or four hours.

POTASSII CITRAS.

CITRATE OF POTASSIUM.

Citrate de Potasse, Fr.; *Citronsaures Kali*, G.

Citrate of potassium shares the action of the acetate, and may be used in the same way (see "Potassii Acetas"; and "Liquor," and "Mistura Potassii Citratis").

Dose.—Twenty to sixty grains, one and one-half to four grammes.

POTASSII CYANIDUM.

CYANIDE OF POTASSIUM.

Cyanure de Potassium, Fr.; *Cyankalium*, G.

The action of this salt is due to its hydrocyanic acid, from which, however, it differs slightly in its poisonous effects by the presence of more local irritation, as shown by the black color of the interior of the stomach found after death. The salt also is not quite so rapid in its action. Poisoning from it may happen on account of its common use in photography and in electro-plating. Its uses are those of hydrocyanic acid, and it has been applied externally, although there are no indications for it which cannot as well be fulfilled by other less dangerous drugs.

Dose.—One-sixteenth to half a grain, four to thirty-two milligrammes (.004 to .032), once or twice a day.

POTASSII ET SODII TARTRAS.

TARTRATE OF POTASSIUM AND SODIUM.

[Rochelle Salt.]

A gentle laxative in a single large dose. Smaller doses frequently repeated render the urine more copious and alkaline.

Dose.—As a laxative, half an ounce to an ounce, fifteen to thirty grammes. To alkalize the urine, half a drachm to a drachm, two to four grammes, may be given every two or three hours.

POTASSII FERROCYANIDUM.

FERROCYANIDE OF POTASSIUM.

Potassæ Prussias Flava, Br.; *Yellow Prussiate of Potash*, E.; *Prussiate Jaune de Potasse*, Fr.; *Blutlaugensalz*, G.

Has no special medicinal virtues. It has been used in certain physiological experiments on account of giving a marked color reaction and being harmless in the circulation. It is used as a chemical test.

POTASSII HYPOPHOSPHIS.

HYPOPHOSPHITE OF POTASSIUM.

Unterphosphorigsaures Kali, G.

This salt may be united in prescription with the other hypophosphites, viz., of calcium and sodium, the action and uses of which it shares. The syrup of the hypophosphites, however, will be found the most convenient form, as, on account of the deliquescence of the salt, it is not suited for prescription in the solid form, and there are no purposes for which it is desirable to use the hypophosphite of potash without the others.

Dose.—Eight to thirty grains, one-half to one gramme.

POTASSII IODIDUM.

IODIDE OF POTASSIUM.

Jodkalium, G.

The action of iodide of potassium is nearly the same as that of the iodine, but the irritating effects are wanting, so that the salt is almost universally employed when the constitutional effects of iodine are desired. This very diffusible salt is rapidly absorbed from the stomach and quickly finds its way to the secretions. It is probably absorbed from the skin to some extent, and under some circumstances, such as the dry salt being applied to the skin or from a cold bath. Its effects are a metallic, somewhat persistent taste in the mouth, the susceptibility to which varies greatly in different individuals; an eruption, most frequently acniform, and a catarrh involving the nasal, conjunctival, and sometimes the laryngeal and bronchial mucous membranes. Wasting of glandular organs and a heavy, depressed condition sometimes occur after a prolonged use; but the severe gastric and nervous disturbances and general cachexia and wasting, although described as effects of iodide of potash, are certainly among the very rarest of accidents, even after large doses and prolonged treatment. Salivation after iodide of potassium may be of two kinds, the first a mere revival of former mercurial treatment, and the second a stimulation of the salivary glands by the iodide without the stomatitis and offensive odor of the mercury.

No perfectly satisfactory explanation of the action of iodide of potassium has been given, and the proofs of its utility are entirely clinical. It is the most important drug in the treatment of the later stages of syphilis as manifested in the severer forms of cutaneous disease, in periostitis, or in gummata of the internal organs. These cases call for large doses. The curability of any disease by iodide of potassium, however, does not warrant a diagnosis of syphilis. The iodide may be of benefit in chronic rheu-

matism, especially muscular, but is as little a specific as many other drugs; in acute it is surpassed by many means of treatment. Rheumatic neuralgia may be benefited by it. The compounds formed in the body by lead and mercury are broken up, and the metals again set free in the circulation by the iodide, and it is often used to eliminate them from the body; but care should be taken that their effects are not temporarily increased to too great an extent. The dose in these cases should be small to begin with, and carefully augmented. It is well for purposes of diagnosis to administer iodide of potassium for a few days before examining the urine for lead in a case of suspected poisoning. If the metal be not then found it is safe to exclude plumbism from the diagnosis. It has been used to promote the absorption of hypertrophied connective-tissue, as in spinal sclerosis, but there is no proof of its efficacy in this direction. As to chronic Bright's disease, it is neither cause nor cure. It should be given freely in all cases of cerebral tumors, and often in meningitis. Its elimination through the respiratory mucous membrane is the explanation not only of the usual coryza, but of the relief afforded in asthma and chronic bronchitis. Experience has shown that iodide of potassium is often useful in aneurism of the aorta, but any explanation of this action is as yet not easy. Many other diseases have been treated by it, but enough has been said to point out the principal indications for its use.

Iodide of potassium is usually prescribed in simple solution or in compound infusion, or syrup of sarsaparilla; small doses may be given in pill. It should not be given with chlorate of potassa.

Dose.—From five to thirty grains, thirty centigrammes to two grammes, thrice per diem. Occasionally in syphilis even more is used.

POTASSII NITRAS.

NITRATE OF POTASSIUM.

Nitre, Saltpetre, E.; *Nitre Prismatique, Azotate (Nitrate) de Potasse,* Fr.; *Salpetersaures Kali, Kalisalpeter,* G.

Small doses of this salt produce no marked effects, except occasionally a slight diuresis. In large doses—an ounce or more—it is a gastro-intestinal irritant, and like other potash salts has a depressing effect upon the heart, which seems to account for the feeble pulse, debility, and collapse observed in poisoning. It has been used in several febrile diseases, such as pneumonia and rheumatism, and also as a diuretic in dropsy, but its utility in either of these conditions may be doubted. The fumes of burning nitre paper (see Charta Potassii Nitratis) are useful in spasmodic asthma.

Dose.—Ten to thirty grains, sixty centigrammes to two grammes, in powder or solution.

POTASSII PERMANGANAS.

PERMANGANATE OF POTASSIUM.

Potassæ Permanganas, Br. ; *Kali Hypermanganicum Crystallisatum*, P. G. ; *Hypermanganas Potassicus s. Kalicus—Permanganate of Potash*, E.; *Permanganate de Potasse*, Fr. ; *Uebermangansaures Kali*, G.

This salt contains a large proportion of oxygen, with a part of which it readily disposes in favor of organic material, and is itself reduced to a lower oxide, as shown by the change of color from a beautiful purple to a muddy brown. It is by its activity as an oxidizer that it becomes a disinfectant. It has been administered internally, but it would be difficult to say what are the indications for it. Locally it is of great value in many diseases attended with decomposing or offensive discharges, as ulcerating cancer, caries, gangrene, diphtheria, ozæna, otorrhœa, leucorrhœa, gonorrhœa, offensive breath or perspiration. As a wash for the hands after dissection or vaginal examination it has only the disadvantage of giving them a brown stain, which, however, can be removed by weak sulphurous or muriatic acids, or by sulphate of iron. This easily decomposable salt should not be prescribed with any organic material or other easily oxidizable substance. Accidental impurities in water may be sufficient to partly change the color of its solution. It is used both as a test and corrigent for the presence of organic impurities in drinking-water. A solution of four grains to the ounce (a little less than one per cent.) may be taken as the average for disinfecting purposes or as a lotion. In the disinfection of drains or bilges of ships (for which it is very efficient) its costliness constitutes an objection.

Dose.—Two to five grains, thirteen to thirty-two centigrammes (.13 to .32), in solution in distilled water.

POTASSII SULPHAS.

SULPHATE OF POTASSIUM.

Potassæ Sulphas, Br. ; *Kali Sulfuricum*, P. G. ; *Sulfas Potassicus s. Kalicus, Arcanum Duplicatum, Tartarus Titriolatus, Sal Polychrestum Glaseri—Sulphate of Potash*, E. ; *Sulfate de Potasse*, Fr. ; *Schwefelsaures Kali*, G.

This salt has been used as a cathartic, but is harsh in its action. Death has taken place from overdoses.

Dose.—Two to four drachms, eight to sixteen grammes.

POTASSII SULPHIS.

SULPHITE OF POTASSIUM.

Kali Sulfurosum, Sulfis Potassicus s. Kalicus—Sulfite de Potasse, Fr.; *Schwefligsaures Kali,* G.

Like the other sulphites this may be used as an internal antiseptic, although the treatment of zymotic diseases by the sulphites has not been followed by any exceptionally favorable results. It may be useful in fermentative dyspepsia. It may be used externally or locally as a cleansing lotion. It should not be prescribed with any oxidizing material. The sulphites are less stable than the hyposulphites.

Dose.—Two to ten grains, twelve to sixty centigrammes (.12 to .60).

POTASSII TARTRAS.

TARTRATE OF POTASSIUM.

Potassæ Tartras, Br.; *Kali Tartaricum,* P. G.; *Tartras Potassicus s. Kalicus, Tartarus Tartarisatus, Tartarus Solubilis—Tartrate of Potash, Soluble Tartar,* E.; *Tartrate de Potasse, Tartre Soluble, Sel Végétale,* Fr.; *Neutrales Weinsaures Kali,* G.

This salt is very similar to the citrate of potash and to the tartrate of potassium and sodium, and acts as a diuretic and antacid in small doses, and a laxative in large. It is less agreeable to the taste than the bitartrate.

Dose.—Half an ounce to an ounce, fifteen to thirty grammes. The same, or even less quantities, would in most cases, if given in divided doses during twenty-four hours, render the urine decidedly alkaline.

PRINOS.

PRINOS.

[Black Alder.]

Winterberry, Feverbush, E.; *Prinos,* Fr., G.

Alder bark is astringent and bitter. It has, like many other indigenous bitters, been used in intermittent fever, as well as in diarrhœa and skin diseases. It may be applied locally.

Dose.—Thirty grains, two grammes. A decoction made by the general rule may be given in the dose of one or two ounces, thirty to sixty grammes.

PRUNUM.

PRUNE.

Prunes, Fr. ; *Pflaumen, Zwetschen*, G.

This fruit is used chiefly as food, with a slight laxative tendency. They may, if taken to excess, like other sweet fruits, give rise to some intestinal disturbance. They are used to relieve or prevent chronic constipation, and their efficacy may be added to by stewing them with senna. They are used in confection of senna, and may also be given with other cathartics.

PRUNUS VIRGINIANA.

WILD CHERRY BARK.

Écorce de Cérisier de Virginie, Fr.; *Wildkirschenrinde*, G.

This bark contains a bitter principle, and also amygdalin and emulsin, which in watery preparations, like the cold officinal infusion, or syrup, produce hydrocyanic acid. The latter does not make its presence manifest unless large doses are taken. Most of the proprietary drugs which bear the name of wild cherry owe much of their flavor to artificially produced hydrocyanic acid, or to oil of bitter almonds, or, possibly, to nitrobenzol. Wild cherry may be used simply as a bitter tonic, but its sedative action, due to the acid, is supposed to be useful in the relief of cough, especially in phthisis. In general, however, it is better for the sake of accuracy to prescribe the officinal acid in an appropriate vehicle.

Dose.—In substance, thirty or forty grains, but its preparations are much more convenient. The infusion is a good preparation, and may be used in doses of from half an ounce to an ounce.

PULSATILLA.

PULSATILLA.

Herba Pulsatillæ, P. G. ; *Pulsatille, Coquelourde*, Fr. ; *Küchenschelle*, G.

The preparations of this herb used in Germany are made from the fresh herb, but the dried is prescribed in the Pharmacopœia. Pulsatilla contains an acrid principle, anemonin or "pulsatilla camphor," which causes inflammation when applied externally, and nephritis when given internally. Animals are poisoned by it with symptoms of weakness of the heart, and respiration, paralysis, and stupor. It has been used in many diseases, as gout, rheumatism, syphilis, and squamous diseases of the skin, to say

nothing of its great reputation in "amaurosis;" but, nevertheless, distinct indications for its exhibition seem to be wanting.

Dose.—One and one-half to six grains, ten to forty centigrammes (.10 to .40), in powder, pill, or infusion.

PULVIS ANTIMONIALIS.

ANTIMONIAL POWDER.

[JAMES'S POWDER.]

Pulvis Antimonii Compositus, Pulvis Jacobi—James's Powder, E.; *Poudre Antimoniale de James*, Fr.; *James's Antimonpulver*, G.

A convenient means of dispensing an antimonial in the solid form. It seems to vary greatly in its effects on different occasions, perhaps from differences in the amount of acid present to dissolve the oxide of antimony. Its action is essentially that of tartar emetic.

Dose.—As a diaphoretic, three to eight grains, eighteen to fifty centigrammes (.18 to .50), every three or four hours. As a cathartic and emetic, larger doses must be given.

PULVIS AROMATICUS.

AROMATIC POWDER.

Pulvis Cinnamoni Compositus, Br.; *Compound Powder of Cinnamon*, E.; *Poudre Aromatique*, Fr.; *Aromatisches Pulver*, G.

This powder possesses the gently stimulating effects of its constituent spices, and may be used either alone as a carminative, or in conjunction with other drugs as a corrigent or vehicle. It is represented in the fluid form by an officinal extract.

Dose.—Ten to thirty grains, sixty centigrammes to two grammes.

PULVIS CRETÆ COMPOSITUS.

COMPOUND CHALK POWDER.

Confectio Aromatica.

Intended for the preparation of chalk mixture, the acacia and sugar delaying the settling of the chalk to the bottom of the phial. There is no reason why it might not be used in substance as an alkaline astringent, especially for diarrhœa in children.

Dose.—Eight to sixty grains, one-half to four grammes.

PULVIS EFFERVESCENS COMPOSITUS.

COMPOUND EFFERVESCING POWDER.

[SEIDLITZ POWDER.]

Pulvis Aërophorus Laxans, s. P. Aërophorus Seidlitzensis, P. G.; *Seidlitz Powders*, E.; *Poudre Gazifère Purgative, Poudre de Sedlitz*, Fr.; *Abführendes Brausepulver, Seidlitzpulver*, G.

This well-known laxative is effectual in most cases in the dose of a single powder, but in some persons remains without effect unless repeated more than once. It has a tendency to alkalize the urine. In small doses its effect is similar to that of the citrate of potash, and it may be used in small portions at a time during effervescence to diminish gastric irritability, or simply as a sort of neutral mixture in slight febrile ailments of children.

Dose.—One or two powders as a laxative; as a diuretic or diaphoretic, small fractions of a powder.

PULVIS GLYCYRRHIZÆ COMPOSITUS.

COMPOUND POWDER OF GLYCYRRHIZA.

Pulvis Liquiritiæ (Glycyrrhizæ) Compositus, s. P. Pectoralis Kurellæ, P. G.; *Poudre de Réglisse Composée*, Fr.; *Brustpulver*, G.

The compound liquorice powder has for some time been used as a gentle and very convenient laxative, and is now very properly placed in the Pharmacopœia. The senna is the most active ingredient.

Dose.—A teaspoonful, more or less, according to circumstances and the experience of the patient.

PULVIS IPECACUANHÆ ET OPII.

POWDER OF IPECAC AND OPIUM.

[PULVIS IPECACUANHÆ COMPOSITUS, *Pharm.*, 1870—DOVER'S POWDER.]

Pulvis Ipecacuanhæ Opiatus, s. Pulvis Doweri, P. G.; *Dover's Powders*, E.; *Poudre de Dower*, Fr.; *Dower'sches Pulver*, G.

The present directions differ from those in the last Pharmacopœia in the use of sugar of milk instead of sulphate of potassium. As this latter salt was of no value except to assist in the minute subdivision of the vege-

table powders, the change is undoubtedly an improvement. This well-known powder is supposed to represent the highest development of the diaphoretic action of opium, and is used where this effect is specially desired, as in acute rheumatism, or in the early stages of a coryza or other slight febrile attack. The combination with ipecac makes it specially useful in diarrhœa and dysentery. With sensitive persons this powder is a little more likely to nauseate than opium alone.

The **Dose** varies as that of opium, the increased strength of which in the present edition should not be forgotten. It is five to fifteen grains, thirty-two centigrammes to one gramme (.32 to 1), mixed with water or syrup. It may conveniently be given in the form of pills, compressed or in the ordinary form.

PULVIS JALAPÆ COMPOSITUS.

COMPOUND POWDER OF JALAP.

An active cathartic, used chiefly to produce copious watery discharges in cases of dropsy.

Dose.—Thirty to sixty grains, two to four grammes.

PULVIS MORPHINÆ COMPOSITUS.

COMPOUND POWDER OF MORPHINE.

[Tully's Powder.]

This powder, though by no means new, is a recent introduction to the Pharmacopœia. It is used by many physicians as a substitute for Dover's powder, and although the ipecac is supposed, in the latter preparation, to add greatly to the diaphoretic effect of the opium, it is very difficult to perceive any essential difference in the action of these two preparations. It is less disagreeable to the taste, and, on account of its greater bulk, more easily divided into minute doses for children than Dover's powder. It should be mixed with water in a large spoon, or given in wafer.

The **Dose** is regulated by the morphia, of which it contains one sixty-first, and is usually considered the same as that of Dover's powder (making morphine equal to six parts of opium), viz., five to fifteen grains, thirty-two centigrammes to one gramme (.32 to 1).

PULVIS RHEI COMPOSITUS.

COMPOUND POWDER OF RHUBARB.

Pulvis Magnesiæ cum Rheo, s. P. Infantum, s. P. Antacidus, P. G.; *Magnesia and Rhubarb*, E.; *Poudre de Rhubarbe Composée*, Fr.; *Kinderpulver*, G.

This preparation might well enough have been left to extemporaneous prescription. It is antacid and laxative, and afterward astringent, and may be used in diarrhœa.

Dose.—Thirty to sixty grains, two to four grammes.

PYRETHRUM.

PELLITORY.

Pyrethri Radix, Br.; *Radix Pyrethri Romani—Pellitory Root, Pellitory of Spain*, E.; *Pyrèthre, Salivaire*, Fr.; *Römische Betramwurzel*, G.

This root contains an acrid resin which is probably its active principle. Its almost exclusive use is as a masticatory, to promote, by its pungency in the mouth, the flow of saliva. This action seems to be regarded as desirable in relieving certain pains about the head and face and in some local affections of the mouth. A piece of the root may be chewed or a decoction used as a gargle. A tincture is officinal.

Dose.—Thirty to sixty grains, two to four grammes.

PYROXYLINUM.

PYROXYLIN.

[Pyroxylon, *Pharm.*, 1870—Soluble Gun-Cotton.]

Pyroxylin, Br.; *Soluble Gun-Cotton*, E.; *Fulmicoton Soluble*, Fr.; *Collodiumwolle*, G.

This preparation is interesting from a medical point of view solely as forming the basis of collodion.

QUASSIA.

QUASSIA.

Quassiæ Lignum, Br.; *Quassia Wood, Bitterwood, Bitterash*, E.; *Quassie, Bois Amer*, Fr.; *Quaissienholz*, G.

This well-known wood is a pure bitter, used to stimulate the appetite and digestion in dyspepsia. Quassia is a poison to many of the lower animals, including dogs, but in man it simply produces, like other bit-

ters, when given too long or too freely, some gastric disturbance. An enema of the infusion is used to kill ascarides in the rectum. It is usually given in the form of the officinal preparations or an infusion. A sort of weak infusion is prepared by the use of the so-called quassia cups, in which water is allowed to stand until it has acquired a bitter taste.

Dose.—Fifteen to thirty grains, one or two grammes.

QUERCUS ALBA.

WHITE OAK.

Cortex Quercûs—Écorce de Chêne, Fr. ; *Eichenrinde*, G.

White oak bark contains a considerable (six to eleven) per cent. of quercitannic acid. It may be used in the form of decoction as an astringent external application. In fine powder it may be used as an ingredient in tooth-powders.

QUILLAIA

QUILLAIA.

[Soap Bark.]

Écorce de Quillaya, Fr. ; *Seifenrinde*, G.

Quillaia owes its common name and its property of forming a froth with water to the glucoside saponin. This glucoside, which is found in a number of plants of the order caryophyllaceæ, and in the officinal senega, is irritant to the upper respiratory passages and causes sneezing, cough, and increasing mucous secretion. It has also, when locally applied, an anæsthetic effect, while internally it is a paralysant of the heart and respiration. Saponin has been recommended on theoretical grounds as an antipyretic ; but neither it nor most of the drugs containing it is much used in this way. Quillaia cannot be considered a remedy of established value as yet. Its uses are those of a sternutatory in coryza.

Dose.—A small quantity of the powdered bark may be snuffed up the nose.

QUINIDINÆ SULPHAS.

SULPHATE OF QUINIDINE.

Sulfate de Quinidine, Fr. ; *Schwefelsaures Chinidin* (*Cinchinin*), G.

Clinical observation seems to show that quinidine is both qualitatively and quantitatively the equivalent of quinine. Its sulphate is a little more soluble than the correspondin$_g$ quinine salt, and having a smaller quan-

tity of water of crystallization ought to produce the same effects in a slightly diminished dose. Practically, however, the doses are the same. Quinidia may be given in solution, mixture, powder (in wafer), or pill.

Dose.—See Quinina.

QUININA.

QUININE.

The salts of quinine all possess similar properties qualitatively; they differ slightly on account of the amount of acid or of water of crystallization present, so that if the dose of quinine be taken as ten, the doses of its salts ought to be as follows: Bisulphate, fourteen and a half; hydrobromate, eleven and a half; hydrochlorate, ten and a half; sulphate, eleven and a half; valerianate, eleven and three-fourths.

Quinine or any of its salts in solution produces an intensely bitter taste in the mouth. It is absorbed with rapidity from the stomach, and may give tokens of its presence in the urine within fifteen minutes. It continues to be excreted for forty-eight hours, more or less, the maximum rapidity being between three and six hours. The less soluble forms may be delayed much beyond the times mentioned. Ordinary doses are entirely absorbed, but excessive ones probably pass off to some extent in the fæces. The bile forms with solutions of quinia a precipitate, which is, however, redissolved in an excess of the precipitant. The quinia is excreted partly in the form of a crystallizable quinine salt, but largely as dihydroxylquinine, which has the fluorescence and some of the reactions of quinine, but has lost its physiological properties. Solutions of quinine are absorbed from the rectum with about the same rapidity as from the stomach, and, of course, with even more from the subcutaneous cellular tissue. Solutions for hypodermic injection should be strictly neutral and of a soluble salt. The hydrobromate is a good form for this use. Small doses of quinine cause in many persons a temporary feeling of excitement or exhilaration like that from a little morphia or a glass of wine. Larger ones produce "cinchonism," consisting in ringing or buzzing in the ears, a feeling of tightness in the head, which sometimes becomes headache, deafness more or less complete, and muscular weakness or disinclination to move, and a staggering gait. The quantities necessary to bring on these effects vary with the susceptibility of the patient, women being more easily affected than men, and the nervous or weakly more than the robust. Four or five grains of the sulphate would in most men produce perceptible cinchonism, and in most women enough to be annoying. Fifteen grains, one gramme, is no more than a healthy man can take at a single dose without anything more than considerable deaf-

ness and ringing and some general debility. Larger doses may cause almost total deafness, which in excessively rare instances may be permanent. Amaurosis lasting for weeks or months has been observed. Insensibility and coma, with a very feeble pulse and dilated, immovable pupils, are noted in extreme cases. The condition of the brain and nervous system which gives rise to these symptoms is probably congestion. The heart's action becomes somewhat weaker, and the blood tension is diminished. Enormous doses of quinia, such as an ounce in the course of a night, or even at a single dose, have been taken without destroying life. In such cases undoubtedly a large proportion of the amount taken into the stomach escapes absorption.

Quinine not very unfrequently produces some, but not very severe, gastro-intestinal irritation, and more rarely irritation of the urinary passages. In some persons quinine, even in small doses, gives rise to cutaneous eruptions, which may be erythematous, scarlatiniform, eczematous, or purpuric. This is a mere idiosyncrasy, and has nothing to do with the intensity of the physiological effects just described.

Of the many interesting facts in regard to quinine noticed of late years which seem to hint at some explanation of its action, the following may be briefly mentioned: Quinine kills infusoria and bacteria, checks the movements and formation of the white blood-corpuscles, and hinders their emigration through the arterial walls in inflammation of the frog's mesentery. As shown by the reaction with tincture of guiacum, it checks the ozonizing action of vegetable juices and of the blood. It hinders the oxidization of indigo into isatin, and delays the acidification of the blood which takes place after death. It checks phosphorescence. Upon the normal temperature it produces but little effect, except to modify the slight rise which takes place after a full meal or vigorous exercise. It diminishes reflex excitability. When some attempts were made to follow quinine in the body by means of its fluorescence, it was found that there is present in the healthy body a substance closely resembling quinine, not only in its fluorescence, but in some of its chemical reactions, and hence named animal quinoidine. This subject has not been studied so thoroughly as it deserves.

The first and most important use of quinine is in intermittent fever, both as a prophylactic and in the treatment. One or two grains a day, with a little more on special exposure, will greatly reduce the number of malarial attacks among a body of men exposed to paludal influences. An expected chill may be generally stopped if the proper dose of quinine in a soluble form be administered from twelve to six hours before the time of the access. Nearer than that it is not quite so certain, but a chill is probably often modified if the dose be taken even immediately before

the early symptoms. The subcutaneous method would allow the dose to be a little smaller, and to be given a little nearer the time of the chill with a prospect of its success. In the pernicious form this latter method may be imperatively called for, even at the risk of local inflammation. In treating intermittent, the doses should not be distributed throughout the day, but should be accumulated, so as to produce a maximum effect at the proper time. It is not necessary to wait for any preparation of the patient, though, if the bowels are previously moved, absorption may be favored. Aromatics and stimulants are useful adjuvants, and tend to make a smaller dose of the essential antiperiodic necessary. The highly complicated tincture of Warburg is said to be very effectual, but is not recognized in the Pharmacopœia. Two doses of it, given near together, contain, in addition to about ten grains of quinia, aromatics, cathartics, antacids, and opiates. In the bilious remittent form of malarial fever the quinine is not so decisive in its action, but still forms an important part of the treatment. In this form the hypodermic method will enable the serious difficulties of vomiting and diarrhœa to be surmounted.

The antipyretic action of quinine can be demonstrated, though less strikingly, in other kinds of fever, especially those of a septic character, as puerperal and erysipelatous, which are treated by large doses, and show comparatively little of the inconvenient effects of the drug. In the artificial fever produced in dogs by the injection of putrid material into the veins, quinine has been shown to produce a very decided effect in lowering the temperature; and in a few cases, where two dogs received the same dose of putrid poison, the one which took quinine recovered, while the other died. The chills of suppuration and pyæmia, however, do not yield to quinine, and in some doubtful cases this point may be of importance in diagnosis.

The "catheter chill" may be warded off by the previous use of quinine. In typhoid, quinine has been used in small doses as a tonic, but with little effect either good or bad. In large doses it has been given throughout the course of the disease, but without very material effect upon its mortality or severity. It is, however, often useful during the latter part of the disease, when the temperature is continuously high, if given in a single large dose, or two near together. The antipyretic effect of this dose is somewhat more permanent than that of a single cold bath, and may well be employed to supplement that mode of treatment. Acute rheumatism has been treated with large doses, but the results do not vary greatly from the average. Rheumatic patients appear to bear the drug well. The fever of phthisis may be moderated by quinine in medium doses, so that the temperature neither rises so high nor falls so low as in cases left to themselves. The disease itself is not modified in its course.

In other febrile diseases, like pneumonia, quinine has been used even when no malarial element can be detected in the cases, but with less decided results. In the early stages of a "cold," quinine may break it up. The chronic malarial cachexia, including enlargement of the spleen, is favorably influenced by quinine, but requires other treatment in addition. Leucocythæmia, receives little, if any, benefit therefrom. Neuralgia of malarial origin would naturally be treated by quinine, but the usefulness of the drug is not confined to this class of cases, many neuralgias which have nothing to do with marsh poisoning being cured or relieved by it. A solution of quinine has been suggested as a parasiticide for the bacteria supposed to be present in whooping-cough and hay fever. A saturated solution of the ordinary sulphate in water, is of the proper strength to use as a nasal douche in the latter affection and gives considerable relief, though no specific. Quite small doses of quinine are used for the "tonic" effect which all bitters exercise on the appetite and digestion. It has been said that physicians ought to feel it their duty to prescribe other bitters in all cases where merely the tonic effect is desired, on account of the increasing scarcity of cinchona bark. The successful plantations of cinchona in British India and elsewhere have somewhat detracted from the force of this remark.

The action of quinine on the uterus has been stated to be powerfully oxytocic, frequently giving rise to miscarriages. The accumulated experience of thousands of physicians ought long ago to have placed the certainty of this action beyond the shadow of a doubt, if it really existed, and the fact that it has had to wait until the last few years to be made evident, is strong proof that it does not exist. It is probably true that in cases where uterine action has already begun, or is just ready to begin spontaneously, quinine, like many other excitants and tonics, may provoke more rapid and efficient contractions.

Quinina is less used than its salts, but it is not necessarily so, since it can be easily dispensed in any desirable form. A solution may be made with any mineral acid. The powder can be given suspended in water or syrup, or enclosed in wafer, or pills may be made with sulphuric or tartaric acid.

Dose.—From half a grain to one grain, three to six centigrammes (.03 to .06), is a small dose, useful only as a tonic, unless repeated at very short intervals, which is not a desirable method of administration. From two to five grains, thirteen to thirty-three centigrammes (.13 to .33), is a small dose; but if repeated once in two or four hours will produce decided physiological effects, as even a single dose of five grains may do in many persons. From six to ten grains, forty to sixty-six centigrammes (.40 to .66),

is a moderate dose, and should be repeated with care. Fifteen to twenty grains, one gramme to one gramme and a half (1 to 1.5), may be considered a large dose, and anything over this a very large dose. From twenty to sixty grains, one and a third to four grammes in a day, is not inadmissible in some cases. From seven and a half to fifteen grains, one to one and a half grammes, appropriately administered, ought to stop most chills in a healthy climate. More is necessary in a malarial region.

QUININÆ BISULPHAS.

BISULPHATE OF QUININE.

This salt has been recently introduced, and has the advantage of greater solubility than that of the ordinary sulphate. This is of consequence only if the drug is to be used in the form of pills.

Doses.—A little larger—forty-five per cent.—than those of quinina.

QUININÆ HYDROBROMAS.

HYDROBROMATE OF QUININE.

A very useful salt for hypodermic injection. It is supposed to produce less of the unpleasant head symptoms than the other salts in the same dose.

Dose.—About the same as for quinine, if given by the mouth; if hypodermically, smaller doses will be efficient.

QUININÆ HYDROCHLORAS.

HYDROCHLORATE OF QUININE.

Has been used subcutaneously.

Dose.—As of the alkaloid, or, if subcutaneously, a little less.

QUININÆ SULPHAS.

SULPHATE OF QUININE.

Chininum Sulfuricum, P. G.; *Sulfas Quinicus—Sulphate of Quinine, Disulphate or Basic Sulphate of Quinia*, E.; *Sulfate de Quinine*, Fr.; *Schwefelsaures Chinin*, G.

This is by far the most commonly used of all the salts. It can be dispensed in every way, but is not so soluble as the bisulphate for pills, and if dissolved with acid for subcutaneous use, is more apt to be irritating than the hydrochlorate or hydrobromate.

Dose.—As of the alkaloid.

QUININÆ VALERIANAS.

VALERIANATE OF QUININE.

Chininum Valerianicum, P. G.; *Valerianate de Quinine*, Fr.; *Baldriansaures Chinin*, G.

This is the only salt of quinine in which the acid is supposed to modify the effect of the bases, except possibly in the hydrobromate. It is used generally in small doses where the nervine and quieting effect of the valerianic acid is desired in addition to the tonic action of the quinine.

Dose.—One or two grains, six to twelve centigrammes (.06 to .12), several times a day.

RESINA.

RESIN.

[COLOPHONY.]

Colophonium, P. G.; *Rosin, Colophony*, E.; *Colophane*, Fr.; *Kolophonium, Geigenharz*, G.

Used to make ointment and plasters.

RESINA COPAIBÆ.

RESIN OF COPAIBA.

This mixture of resins is, in large doses, a gastro-intestinal irritant. It is a diuretic, sometimes giving rise to lumbar pain and albuminuria, but causing less irritation of the bladder and urethra than the oil of copaiba. It does not seem to be quite certain whether it is as good an anti-blenorrhagic as the balsam itself.

It may be used as a diuretic in dropsy, being much less disagreeable that the crude copaiba. It is administered in the dose of from fifteen to twenty grains, one to one and one-third gramme, in mixture with some aromatic water, three or four times a day.

RESINA JALAPÆ.

RESIN OF JALAP.

The officinal resin, which may, if desirable, be made white by the use of animal charcoal, is composed of two resins, one of which is called convolvulin. The resin jalapin is not found in the officinal jalap, but in "male jalap" and in scammony. These resins are all cathartics. The

resina jalapæ is somewhat more harsh in its action than the root itself, although the other constituents of the root probably have no other than a mechanical effect.

Dose.—Two to five grains, thirteen to thirty-three centigrammes (.13 to .33), in pill.

RESINA PODOPHYLLI.

RESIN OF PODOPHYLLUM.

The action and uses of this resin are those of the podophyllum. It is an active purgative and cholagogue.

Dose.—From one-eighth of a grain to a grain, eight milligrammes to six centigrammes (.008 to .06).

RESINA SCAMMONII.

RESIN OF SCAMMONY.

Good scammony contains so large a proportion of resin, that its dose is but little larger than that of the resin, although the commercial drug, chiefly from the presence of mechanical impurities and adulterations, usually needs about twice as much.

This resin is an active cathartic. It may be administered in an emulsion formed by rubbing with milk or water or in powder.

Dose.—Four to eight grains, twenty-five to fifty centigrammes (.25 to .50).

RHEUM.

RHUBARB.

Rhei Radix, Br. ; *Rhubarb Root*, E. ; *Rhubarbe*, Fr. ; *Rhabarber*, G.

Laborious researches have not yet made the chemistry of rhubarb satisfactory. The root contains a kind of tannic acid, as well as chrysophanic acid—to which the color it imparts to the secretions is probably due—various resins, and oxalate of lime. Although chrysophanic acid sometimes acts as a cathartic (see Chrysarobinum), neither it nor any of the other known constituents of the drug is a very vigorous one, and it cannot be said that the active principle is determined. It is probably closely akin to that of senna. In quite small doses, one to four grains, six to twenty-five centigrammes, rhubarb has but little effect beyond increasing the appetite and digestion in cases where these functions are deficient. If repeated, it tends to cause some constipation, in consequence, mainly, of

the tannic acid. The sweat and milk become yellow, and the urine a yellowish brown, becoming a reddish brown with alkalies. Larger (thirty to sixty grains, two to four grammes) doses increase the intestinal evacuations, which consist of pultaceous yellow stools, the color being that of the rhubarb. It is apt to leave after its action some constipation, which can be partially avoided by attention to diet and habits. This property, which is not peculiar to rhubarb, but is in this case probably due to the tannic acid, fits this drug especially for use in the beginning of a diarrhœa caused by irritating material in the bowels. Rhubarb is used as a tonic or laxative in the form of powder or infusion, both of which are objectionable on account of the bitter and disagreeable taste, or the tinctures or pills, many of which are officinal. A little piece of the root eaten every day sometimes answers a good purpose in habitual constipation.

Dose.—Small, one-half to four grains, three to twenty-five centigrammes (.03 to .25); laxative, eight to fifteen grains, one-half to one gramme; large, thirty to sixty grains, two to four grammes.

RHUS GLABRA.

RHUS GLABRA.

[Rhus Glabrum, *Pharm.*, 1870—Sumach.]

Smooth Sumach, Pennsylvania or Upland Sumach, E.; *Sumac*, Fr.; *Sumach*, G.

These berries contain tannic and malic acids. An infusion may be used as an acidulous and astringent drink or gargle in stomatitis and pharyngitis.

Dose.—Indefinite.

RHUS TOXICODENDRON.

RHUS TOXICODENDRON.

[Poison Ivy—Poison Oak.]

Sumach Vénéneux, Fr.; *Gift-Sumach*, G.

The poisonous properties of this plant are well known. It produces an eczematous eruption attended with much burning and swelling of the skin, and fever. Some persons are entirely devoid of susceptibility to this poison, while others experience the effects from the slightest contact or even without contact. Rhus venenata, or "dogwood," is even more active.

The active principle has been found to be toxicodendric acid. The treatment consists in alkaline lotions or solutions of lead acetate. Grindelia robusta, the fluid extract diluted ten times, is a convenient and soothing application. Internally these leaves give rise to symptoms of narcotic poisoning, consisting of vertigo, faintness, delirium, and convulsions, with a slow, small, and irregular pulse, and diuresis and diaphoresis are observed.

It is difficult to see any indications for the use of this plant. The fresh leaves would, unless care were taken to administer to none but persons insensible to their external effects, be likely to do more harm than their slight diaphoretic action would do good. The present Pharmacopœia must contemplate a tincture made from the fresh leaves under the general formula. (See page 343 of the Pharmacopœia.) A specially qualified pharmacist should be selected to make it.

Dose of this drug in substance cannot be stated. Five grains is spoken of as that of the powdered leaves.

ROSA CENTIFOLIA.

PALE ROSE.

Used merely to impart a delicate flavor.

ROSA GALLICA.

RED ROSE.

Red rose-buds are a little more astringent than the pale rose, and have been used as an external application. They are employed to impart flavor and color to several officinal preparations.

ROSMARINUS.

ROSEMARY.

Folia Rosmarini s. Roris Marini, P. G. ; *Folia Anthos—Feuilles de Romarin*, Fr. ; *Rosmarinblätter*, G.

Contains a bitter resin, tannin, and volatile oil, the latter of which is the most important. It possesses the usual somewhat stimulant and carminative action of many volatile oils. It is not used in substance, but its oil is officinal. An infusion of the plant, in the proportion of one in fifty or one hundred, may be used in tablespoonful doses. Like many other fragrant herbs, rosemary may be used as a fomentation.

RUBUS.

RUBUS.

[Blackberry.]

Écorce de Ronce Noir, Fr.; *Brombeerrinde*, G.

This drug owes its efficacy to tannin. It is used as an astringent in the form of a decoction made by the general rule, or weaker, with water or milk, of which six or eight ounces, one hundred and eighty or two hundred and forty cubic centimeters may be used in twenty-four hours. A wine of the berries of these plants is an agreeable and useful astringent.

Dose.—In substance, fifteen to thirty grains, one to two grammes, in powder. The dose is limited rather by its bulkiness than from any fear of overaction, the doses of decoction mentioned above corresponding to considerably more than this.

RUBUS IDÆUS.

RASPBERRY.

Used in medicine simply for its color and flavor in the form of syrup.

RUMEX.

RUMEX.

[Yellow Dock.]

Radix Rumicis s. Lapathi—Racine de Patience Frisée, Fr.; *Grindwurzel*, G.

Dockroot is astringent, bitter, and sometimes laxative. It is also reputed "alterative," and has been used accordingly. The leaves of some other species of this genus have an agreeable acid taste, like that of the garden rhubarb, to which they are nearly related. They have been used as antiscorbutics. The root is given in powder or decoction (by the general rule). It has been used externally as a poultice, ointment, or wash in skin diseases.

Dose.—Of the decoction, one to two ounces, thirty to sixty cubic centimeters.

SABINA.

SAVINE.

Sabinæ Cacumina, Br.; *Summitates* (*Herba*) *Sabinæ*, P. G.; *Savin Tops*, E.; *Sabine*, Fr.; *Sadebaumspitzen, Sevenkraut*, G.

The activity of savin depends upon its volatile oil, and hence the dried drug is much less efficient than the fresh. The symptoms produced by it

are those of irritation of the alimentary canal as well as of the kidneys and bladder, together with, in extreme cases, dyspnœa, general anæsthesia, convulsions, and coma. Death may take place from large doses in twelve or fourteen hours. It has been used in amenorrhœa, and to produce abortion, and has been recently recommended in menorrhagia and to stop abortion. It is used externally as an irritant in order to continue the discharge from a blistered surface.

Dose.—Five to fifteen grains, thirty-three centigrammes to one gramme (.33 to 1).

SACCHARUM.

SUGAR.

Saccharum Purificatum, Br. ; *Refined Sugar, Cane-Sugar*, E.; *Sucre, Sucre de Canne*, Fr. ; *Zucker, Rohrzucker*, G.

The chemistry and dietetic uses of sugar are beyond the limits of this article. In pharmacy and therapeutics its place is chiefly that of a vehicle, corrigent, and preservative. The syrups have the advantage of protecting the active ingredients against putrefaction and some kinds of oxidation, but not always against fermentation. A similar action takes place in other preparations, as the compound iron mixture and the saccharated carbonate of iron. It is used as an ingredient in powders, troches, and extemporaneous mixtures, to cover the taste or to make insoluble substances more easily miscible with water. It should be remembered that sugar and syrup, although they partly cover a bitter or too pungent taste, cause the taste to linger longer in the mouth, while for many persons sweetness rather adds to the repulsiveness of a nauseous dose.

SACCHARUM LACTIS.

SUGAR OF MILK.

Lactin, Milk Sugar, E. ; *Sucre de Lait*, Fr. ; *Milchzucker*, G.

This sugar is harder, less soluble, and less sweet than cane-sugar, hence it is a better excipient and diluent for powders that require fine trituration. It is used largely as a diluent in the present edition of the Pharmacopœia, as in the abstracts, denarcotized opium, etc. It is partly the material of homœopathic and other pellets.

SALICINUM.

SALICIN.

SALIX.

SALIX.

[WILLOW.]

Willow Bark, E. ; *Écorce de Saule*, Fr. ; *Weidenrinde*, G.

Salicin has been used as a bitter, and as an inferior substitute for quinine for many years, but has recently received new importance from having been successfully employed, like salicylic acid, in the treatment of acute rheumatism. It is eliminated by the urine, more or less changed, giving with a solution of ferric chloride the same reaction as salicylic acid. It is given in the same doses as salicylic acid, and produces the same effects, but rather more slowly and with less gastro-intestinal disturbance than the acid. Many patients, although not experiencing so speedy relief from salicin as from the acid, yet at the end of a week are quite as strong and have as good an appetite as if the more rapidly acting drug had been given. The willow bark has been used in infusion as a tonic, and even as an antipyretic, but is inconvenient for the latter purpose on account of its bulk. The salicin may be given in pill, wafer, or mixture.

Dose.—Of the willow bark as an antiperiodic, a drachm, or as much as can be taken without causing nausea and vomiting ; as a tonic, ten to twenty grains, thirty to sixty centigrammes (.30 to .60). Of salicin, three to fifteen grains, eighteen centigrammes to one gramme (.18 to 1), every one or two hours in rheumatism ; twenty to sixty grains in one dose, or in three doses near together some hours before a chill is expected.

SALVIA.

SALVIA.

[SAGE.]

Folia (*Herba*) *Salviæ*, P. G. ; *Sange Officinale*, Fr. ; *Salbeiblätter*, G.

The leaves of sage contain a volatile oil, and are bitterish and astringent. They are used as a condiment. The infusion of sage is liked by some persons as a beverage in febrile disorders, and has been used to check the night-sweating of phthisis. It also has, like other aromatics, a slight effect in relieving intestinal pain and flatulence. It may be used as an astringent gargle. If the taste and stimulating effects are alone desired, the infusion should be made rapidly ; but if it is to be employed for its astringent action, the water should be allowed to remain longer upon the herb.

Dose.—One to two fluidounces, thirty to sixty cubic centimeters, of the infusion.

SAMBUCUS.

SAMBUCUS.

[ELDER.]

Sambuci Flores, Br.; *Elder Flowers*, E.; *Fleurs de Sureau*, Fr.; *Fliederblumen, Hollunderblüthen*, G.

Nearly all the parts of this plant have been used in medicine, and seem to have generally a diaphoretic and cathartic action, or, in large doses, emetic. The flowers, which are officinal, contain a volatile oil and a resin. They are used externally in the form of fomentations and ointments. A water may be distilled to be used for its fragrance.

SANGUINARIA.

SANGUINARIA.

[BLOODROOT.]

Bloodroot contains three alkaloids, of which, however, only one, sanguinarina, seems to represent the activity of the drug. This forms bright red salts with acids, and is probably identical with chelerethrin (see Chelidonium). It is acrid, gives rise to sneezing when taken into the nose, and when given by the stomach causes nausea, vomiting, and diminished frequency of the heart's action. Sanguinaria itself produces essentially the same effects which have, in cases of poisoning, been carried further than in the experiments made with the alkaloid. Vertigo, impaired vision, muscular prostration, and a much more extreme degree of action on the heart, and death, have resulted from overdoses. Sanguinaria is stated to be expectorant in doses smaller than are used to produce even the lesser degrees of its physiological action, and it is seldom pushed to marked depressing effects. It has been used in a very large number of diseases, among which it is difficult to trace the indications for any of its more obvious effects. Locally, sanguinaria has been used in substance as an ingredient of a cancer paste, and, in infusion, as a stimulating gargle or cutaneous lotion.

Dose.—As an emetic, ten to twenty grains, sixty-four to one hundred and thirty centigrammes (.64 to 1.30), in pill or infusion; for other purposes, as expectorant or "alterative," one to five grains, six to thirty-two centigrammes (.06 to .32).

SANTALUM RUBRUM.

RED SAUNDERS.

Pterocarpi Lignum, Br. ; *Lignum Santalinum Rubrum—Red Sandal Wood*, E. ; *Santal Rouge*, Fr. ; *Rothes Santelholz*, G.

This wood is used solely to impart color.

SANTONICA.

SANTONICA.

[Levant Wormseed.]

Flores Cinæ, P. G. ; *Semen Cinæ, s. Contra, s. Sanctum, s. Santonici—Levant Wormseed*, E. ; *Barbotine, Semencine*, Fr. ; *Wurmsamen, Zitwersamen*, G.

Dose.—Ten to twenty grains, sixty to one hundred and thirty centigrammes (.60 to 1.30), twice a day.

SANTONINUM.

SANTONIN.

Santonine, Fr. ; *Santonin*, G.

Santonica contains a volatile oil, resins, and a bitter principle, santonin, which, as well as the crude drug, is used to expel the ascaris lumbricoides. Santonin produces some peculiar effects beside those for which it is usually given. It colors the urine yellow or sometimes a purplish red, the difference being probably due to the acid or alkaline reaction of the fluid, and when large doses are taken the vision of the patient becomes affected, so that objects appear yellow, green, or violet. Poisoning by santonin is attended by gastro-intestinal irritation, giddiness, trembling, dilated pupils, stupor, loss of consciousness with convulsions, and rapid pulse and respiration. It has been successfully used in some cases to increase the acuteness of vision.

If santonin is to be employed as an anthelmintic it may be easily taken in the form of powder or troches, since its comparative insolubility prevents its disagreeable taste from being noticed ; if for its constitutional effect, it is desirable to make it more soluble, which may be done with alcohol and syrup, or the santoninate of soda may be used.

Dose.—One to five grains for an adult, six to thirty centigrammes (.06 to .30) ; one-fourth of a grain, sixteen milligrammes (.016), to a child. Dangerous symptoms have occurred from two, three, and four grains, and one fatal case from two. On account of the slow action of the drug, doses should not be given in rapid succession.

SAPO.

SOAP.

Savon, Fr. ; *Seife*, G.

SAPO VIRIDIS.

GREEN SOAP.

Soap is used in a number of officinal preparations, both for external and internal application. It has by itself a slight physiological action, being feebly laxative. Either of these soaps is a useful antidote in acid poisoning, as the alkali is readily seized upon by even a weak acid, and the fatty acids set free are absolutely innocuous. Externally, soap is used for cleansing the skin, removing fatty substances, and softening the epidermis. If too long applied, soft soap may be a decided irritant. Soft soap, which is more alkaline than the hard, is used in some cutaneous diseases, especially in eczema.

SARSAPARILLA.

SARSAPARILLA.

Sarsæ Radix, Br. ; *Radix Sarsaparillæ*, P. G. ; *Salsepareille*, Fr.; *Sassaparilla*, G.

Sarsaparilla contains starch, resin, a very small quantity of essential oil, a dark-colored extractive, and a neutral acrid principle, parillin, which in large doses causes gastro-intestinal irritation, general depression and diaphoresis. Sarsaparilla, itself, exhibits no very active properties and is used, chiefly as a vehicle, in the form of its various decoctions and extracts. It has been supposed very beneficial in syphilis. But, while it is probable that, when given, as is best done, in well diluted preparations, and with other diaphoretics, it is a valuable adjuvant, the cure of the disease is not confided to it alone. It is not given in substance.

SASSAFRAS.

SASSAFRAS.

This bark, rich in oil and containing a considerable quantity of tannin and its derivatives, has the general action of aromatics. An infusion made by the general rule may be freely used.

SASSAFRAS MEDULLA.

SASSAFRAS PITH.

The pith of sassafras contains, as do also the leaves, sufficient mucilage to make an agreeable demulcent for external or internal use.

SCAMMONIUM.

SCAMMONY.

Scammonée, Fr.; *Scammonium*, G.

The activity of scammony resides in its resin, of which it contains between eighty and ninety per cent., the remainder consisting of starch, mucilage, and sugar, which perhaps facilitate its action by promoting mechanical subdivision.

Scammony is an active but not always certain cathartic, causing more or less gastro-intestinal irritation. A portion of the resin is absorbed, as has been shown by an infant being fatally purged by a dose taken by its nurse.

Scammony is seldom used alone, on account of the uncertainty and harshness of its action, but it enters into many more or less complex combinations. It has the advantage of being easily administered, either rubbed up with milk or water or in powder with sugar of milk.

Dose.—Of pure scammony, which is almost the same thing as the resin, five to fifteen grains; of the commercial, ten to twenty, in proportion to the amount of impurity.

SCILLA.

SQUILL.

Bulbus Scillæ, P. G.; *Squills*, E.; *Scille, Squille*, Fr.; *Meerzwiebel*, G.

The chemistry of squill is not satisfactorily made out, but it probably contains a bitter principle called scillitin, and an acrid one not isolated. Scillitin and squill cause vomiting and purging when given in large doses, together with dyspnœa, bloody urine, coma, and convulsions. Death from squill is said to be accompanied by cessation of the heart's action in systole. Smaller doses produce effects closely akin to those of digitalis in rendering the pulse slower and more forcible, and increasing the flow of urine. The expectorant effect with which it is universally credited is shown only by clinical observation, and not by physiological experiment.

Squill is used chiefly in respiratory diseases, such as bronchitis and croup, partly in small doses as an expectorant without emetic action, and partly in larger ones as an emetic. For the latter purpose, as in croup,

it is generally given with some other emetic. The officinal "compound syrup of squill" contains, in addition to the squill, tartar emetic.

It is frequently employed in dropsy with digitalis, which it assists in its diuretic action as well as in strengthening the heart, so likely to be weakened in dropsical cases even when the effusions are not the direct result of valvular lesions.

Dose.—One to three grains, six to twenty centigrammes (.06 to .20), which may be gradually increased to eight, half a gramme. It may be easily given in pill. As an expectorant the syrup is most frequently used.

SCOPARIUS.

SCOPARIUS.

[Broom.]

Scoparii Cacumina, Br.; *Herba Scoparii—Broom Tops*, E.; *Génêt à Balais*, Fr.; *Besenginster, Pfriemenkraut*, G.

This plant has long been known as an efficient diuretic. It contains scoparin, a neutral and probably not important principle, and the alkaloid spartein, together with a considerable proportion of potassa salts. Although spartein has some action as a cardiac and nervous sedative, its physiological effects are not developed in the doses of broom in ordinary use. Broom is used in dropsy, either alone or more usually with other diuretics. The decoction is generally used. Of this, made by the general rule, four to eight ounces, somewhat diluted, may be taken in the course of twenty-four hours.

SCUTELLARIA.

SCUTELLARIA.

[Scullcap.]

Hoodwort, Madweed, E.; *Scutellaire*, Fr.; *Helmkraut*, G.

Possesses the mild effects of many labiatæ. It has been supposed to have a special action on the nervous system in controlling restlessness, spasmodic affections, and slight pain, but there is no sufficient evidence that it possesses any powers beyond those of many other mints, of which, indeed, it does not share the aromatic smell and taste. Its claims as preventing or curing hydrophobia possess only a historical interest. It is rather bulky to be given in a pill, but two or three grains can be used in this way. An infusion or the fluid extract is more convenient.

Dose.—Indefinite.

SENEGA.

SENEGA.

Senegæ Radix, Br.; *Senega Root, Senega Snakeroot*, E.; *Polygale de Virginie*, Fr.; *Senegawurzel*, G.

This plant owes its activity chiefly to senegin, a glucoside closely allied to, if not identical with saponin. Senega produces irritation of the throat, with some salivation and symptoms of gastro-intestinal irritation, as well as an inclination to cough and increased bronchial secretion. The urine and perspiration may be a little increased. The uses of senega are those of a stimulant expectorant. It is used in the later stages of typhoid pneumonia, bronchitis, and croup, to promote a freer discharge of accumulated mucus. It is suitable only after the more active inflammatory symptoms have passed by.

Dose.—Ten to twenty grains, sixty-four to one hundred and thirty centigrammes (.64 to 1.30). The decoction and syrup are more used.

SENNA.

SENNA.

Folia Sennæ, Senna Leaves, E.; *Feuilles de Séné*, Fr.; *Sennesblätter*, G.

The chemistry of this drug is, like that of rhubarb, which it much resembles, not in a satisfactory state. Senna contains chrysophanic acid, but it is probable that its cathartic properties are due to a cathartate of lime and magnesia. Senna produces active, but not violent or drastic catharsis, attended with considerable griping, flatulence, and nausea. Aromatics, like fennel and ginger, or salines, are given with it to correct this tendency (see Compound Infusion of Senna). Injected into a vein, senna causes purging attended with an increased flow of bile. Senna imparts to the urine a color resembling that of bile, from which it may be easily distinguished by turning red with alkalies. It is used in cases where a vigorous, but not specially hydragogue action is required.

Dose.—Half a drachm to two drachms, two to eight grammes.

SERPENTARIA.

SERPENTARIA.

[Virginia Snakeroot.]

Serpentariæ Radix, Br.; *Serpentary Root*, E.; *Serpentaire (Couleuvrée) de Virginie*, Fr.; *Virginische Schlangenwurzel*, G.

Serpentaria contains a volatile oil and a bitter. In large doses it produces some gastric disturbance, with fulness in the head and quickened

pulse. It is called a stimulant tonic and is used in low typhoid conditions occurring in any acute disease. It is combined with alcohol and cinchona, which are often indicated in the same condition, in the celebrated "compound tincture of cinchona" of Huxham. The infusion is a useful form of administration.

Dose.—Ten to thirty grains, sixty-four centigrammes to two grammes (.64 to 2).

SEVUM.

SUET.

Sevum Præparatum, Br.; *Sebum*, P. G.; *Sebum Ovillum—Prepared Suet, Mutton Suet*, E.; *Suif*, Fr.; *Talg, Hammeltalg*, G.

Suet is a somewhat harder fat than lard, but is also more apt to become rancid. It is used in liniments, etc., to make them harder. It can also be applied alone as a dressing to ulcers.

SINAPIS ALBA.

WHITE MUSTARD.

Semen Erucæ—Yellow Mustard Seed, E.; *Moutarde Blanche*, Fr.; *Weisser Senf*, G.

SINAPIS NIGRA.

BLACK MUSTARD.

Semen Sinapis, P. G.; *Moutarde Noire (Grise)*, Fr.; *Schwarzer Senf*, G.

Both kinds of mustard seed contain from one-third to one-half of their weight of a bland fixed oil. Besides this, both contain a ferment, myrosin, which acting on myronate of potassa contained in the black mustard seed, and on a somewhat analogous compound, sinalbin, contained in the white, gives rise, in the former, to the officinal oil of mustard, and in the latter to an acrid but non-volatile oil. The commercial flour of mustard is a mixture of both kinds. It is used as a condiment in the form of a paste, sometimes mixed with other spices. In medicine, the same compound, when given in doses of two to four drachms, eight to fifteen grammes, is an efficient and very prompt emetic, and is frequently administered in domestic practice as being the first at hand. If, however, owing to deficient sensibility of the stomach and nervous system (as for instance, in opium poisoning), it fails to act, it may give rise to gastritis, which will afterward be troublesome. Externally, as a poultice, it is used in almost

every disease accompanied with pain, in order to produce rapid rubefaction and counter-irritation. A mustard poultice should be made with warm, but not hot, water, nor with vinegar. For delicate skins, or when a more prolonged action is desirable, it may be diluted with flaxseed or rye meal. It should not be allowed to form a blister, as such are hard to heal. The officinal mustard paper is a convenient and cleanly application. For milder counter-irritation, used over a large surface, mustard water may be used as a bath, or to moisten cloths to be wrapped about the limbs. The oil may be applied, well diluted, to regions where poultices or fomentations cannot easily be kept in place. White mustard seed has been used in substance, unground, as a mechanical laxative. It produces no irritation. The black mustard seed is kept separately as a powder.

Dose.—Of mixed mustard powder, as an emetic, two to four drachms, eight to fifteen grammes (a heaping teaspoonful); of white mustard seed, as a laxative, unbruised, a tablespoonful.

SODA.

SODA.

Sodæ Caustica, Br.; *Natrum Causticum s. Hydricum*, *Caustic Soda*, *Sodium Hydrate*, E.; *Soude Caustique*, Fr.; *Natron*, *Aetznatron*, G.

Soda may be used for the same purposes as potassa. It is somewhat less deliquescent. It may be dissolved in water to make a solution of any desired strength.

SODII ACETAS.

ACETATE OF SODIUM.

Sodæ Acetas, Br.; *Natrum Aceticum*, P. G.; *Acetas Sodicus* (*Natricus*), *Terra Foliata Tartari Crystallisata*, E.; *Acétate de Soude*, Fr.; *Essigsaures Natron*, G.

This salt has the same general diuretic and antacid action with the acetate of potassium, but is probably a little less powerful. It would be preferred if, for any reason, it were desirable to administer an alkaline acetate in the solid form, on account of its lesser disposition to deliquesce.

Dose.—Fifteen to one hundred and twenty grains, one to eight grammes, in solution.

SODII ARSENIAS.

ARSENIATE OF SODIUM.

Sodæ Arsenias, Br. ; *Natrum Arsenicum, Arsenias Natricus, Sodicus—Arseniate (Arseniate) of Soda*, E. ; *Arséniate de Soude*, Fr. ; *Arsensaures Natron*, G.

The activity of this salt is due to its arsenic acid, and its uses are those described under the head of arsenious acid, from which the higher oxide does not essentially differ in physiological action. It has been considered milder in its action than the other arsenical preparations, but it appears probable from the doses stated that really a smaller quantity of arsenic was administered. With this preparation, as with the others, in many cases the dose should be gradually increased until the signs of its physiological activity appear.

Dose.—One-twentieth to one-third of a grain, three to twenty milligrammes (.003 to .020), in pill or solution.

SODII BENZOAS.

BENZOATE OF SODIUM.

This salt shares the action of benzoic acid upon the urine. (See Benzoic Acid and the Benzoates of Ammonia and Lithia.) It would be less useful than the lithia salt, however, since the urate of sodium is less soluble than the corresponding lithia salt. It has been used as an internal antiseptic in appropriate diseases, especially puerperal fever, with alleged great success. It has been inhaled in the form of an atomized solution in phthisis, but without producing, except in the first few cases in which it was tried, any marked improvement in the symptoms, or, in the fatal cases submitted to autopsy, any signs of healing. A five-per-cent. solution may be used for inhaling.

Dose.—Ten to twenty-three grains, two-thirds of a gramme to a gramme and a half (.64 to 1.5).

SODII BICARBONAS.

BICARBONATE OF SODIUM.

Sodæ Bicarbonas, Br. ; *Natrum Bicarbonicum*, P. G. ; *Natrum Carbonicum Acidulum, Bicarbonas Sodicus—Bicarbonate of Soda, Sodium Hydrocarbonate*, E. ; *Bicarbonate de Soude, sel Digestive de Vichy*, Fr. ; *Doppelkohlensaures Natron*, G.

This salt is an ingredient of many preparations, especially those intended for effervescence. It is one of the best antacids for use in the

stomach, because it has very slight irritant properties. It renders the urine alkaline, and is somewhat diuretic. Too long continued use of large quantities tends to weaken the stomach and perpetuate the dyspeptic symptoms it is designed to relieve. It is indicated as a palliative when there is acidity of the stomach arising from abnormal fermentations and when a general acid diathesis exists. Long-continued use may give rise to an alkaline cachexia distinguished by anæmia and scorbutic symptoms. For most purposes where increased alkalinity of the blood is desired, as in rheumatism or the uric acid diathesis, although the soda salt may be useful, the potassa salts are to be preferred. In diabetes this salt has proved of considerable value. Given before a meal, bicarbonate of soda tends to stimulate the flow of gastric juice, and thus facilitate digestion.

Dose.—Eight to thirty grains, one-half to two grammes, in water or compressed pill.

SODII BICARBONAS VENALIS.

COMMERCIAL BICARBONATE OF SODIUM.

May be used externally.

SODII BISULPHIS.

BISULPHITE OF SODIUM.

This recent introduction to the Pharmacopœia contains more sulphurous acid than the older sulphite, and hence may be considered a more powerful antiseptic. It has, however, a more pungent taste, and gives off sulphurous acid on exposure.

Dose.—Eight to thirty grains, one-half to two grammes.

SODII BORAS.

BORATE OF SODIUM.

Borax, Br., P. G. ; *Natrum Biboricum, Boras Sodicus, Boras—Borax*, E. ; *Borate de Soude*, Fr. ; *Borsaures Natron*, G.

Boracic acid so feebly counteracts its base that this salt has still an alkaline reaction ; hence borax has similar effects to those of other sodium salts. It is stated, when given internally, to have a solvent action on the urates second only to that of carbonate of lithia. The contractions of the uterus in labor have been supposed to be promoted by it, and it has also been used as an emmenagogue. Recently its use has been advocated in epilepsy as a substitute for bromide of potassium, or, rather, for the

next resource after that salt has failed. It is chiefly used locally as an application in various kinds of inflammation in the mouth, tongue, fauces, and nasal passages, as well as for aphthæ and thrush. It can also be employed in skin diseases in the form of lotion. In the mouth it can be applied as a simple wash, in powder with sugar, the classical and officinal "honey," or in glycerine. A lump of borax may be allowed to dissolve in the mouth. A solution of thirty grains to the ounce or more, six per cent. and upward, may be used externally.

Dose.—Internally, eight to forty-five grains, half a gramme to three grammes.

SODII BROMIDUM.

BROMIDE OF SODIUM.

Natrium Bromatum, Bromuretum Sodicum—Bromure de Sodium, Fr. ; *Bromnatrium,* G.

This salt is much less disagreeable to the taste than bromide of potassium, and also produces somewhat less of the undesirable effects of the long-continued administration of this drug. While it is undoubtedly true that in animals the toxic effects of the sodium are much inferior to those of the potassium salt, clinical evidence seems to show that both the unpleasant results known collectively as bromism and the therapeutic action can be produced by the bromide of sodium, and, while it cannot be regarded as equally active with bromide of potassium, it may be used in cases where the long-continued use of a bromide is demanded, as in epilepsy.

Dose.—From fifteen to sixty grains, one to four grammes, as a single dose, which is to be repeated at intervals, depending upon the nature of the case. It has been given for some days at the rate of an ounce a day, though this is to be considered a very large dose, and one to be carefully watched. It is to be given in solution.

SODII CARBONAS.

CARBONATE OF SODIUM.

Sodæ Carbonas, Br. ; *Natrum Carbonicum Crudum,* P. G. ; *Carbonas Sodicus, Sal Soda—Sal Soda, Washing Soda,* E. ; *Carbonate de Soude,* Fr. ; *Kohlensaures Natron, Soda,* G.

SODII CARBONAS EXSICCATUS.

DRIED CARBONATE OF SODIUM.

Sodæ Carbonas Exsiccata, Br.; *Natrum Carbonicum Siccum*, P. G.; *Dried Carbonate of Soda*, E.; *Carbonate de Soude Sec*, Fr.; *Getrocknete Soda*, G.

The carbonate of sodium is used only for pharmaceutical purposes. The dried carbonate is more irritating than the bicarbonate, and when taken internally, in large doses, produces gastro-intestinal inflammation, and, after a time, alkaline cachexia. It is more active than the bicarbonate when used externally, and may be employed to make an alkaline bath or lotion for diseases of the skin. A lotion may be made of the strength of from ten to twenty grains to the ounce, two to four per cent. There are no internal uses for which this salt is preferable to the bicarbonate, but if used the

Dose should be from four to twenty-four grains, one-fourth of a gramme to a gramme and one-half, well diluted.

SODII CHLORAS.

CHLORATE OF SODIUM.

Sodium chlorate differs from the corresponding potassium salt in its much greater solubility in water, which makes it somewhat easier to dispense in the fluid form, especially for internal use. Considering, however, the dangers of such administration from the action of the drug on the blood and on the kidneys (see Potassii Chloras), and also the fact that a saturated solution of the potassium chlorate is strong enough, the advantage of greater solubility, which appears to be the only one, is somewhat doubtful.

Dose.—Internally, eight to twenty-four grains, half a gramme to a gramme and one-half, in solution. As a gargle or wash, a solution of from fifteen to thirty grains to the ounce, three to six per cent., may be used.

SODII CHLORIDUM.

CHLORIDE OF SODIUM.

Natrium Chloratum Purum, P. G.; *Chloruretum Sodicum, Sal Commune s. Culinare—Common Salt, Table Salt, Sodium Chloride*, E.; *Chlorure de Sodium, Sel Commun, Sel de Cuisine*, Fr.; *Chlornatrium, Kochsalz*, G.

Common salt is not only a drug, but one of the necessaries of life for man and many of the lower animals. In large doses, and but slightly

diluted, chloride of sodium may produce irritant effects upon the skin or upon the gastro-intestinal mucous membrane, as is shown by vomiting and purging. Death has resulted from its ingestion in excessive quantity (one pound). As an article of diet, salt probably stimulates the flow of the digestive fluids, as well as furnishes the necessary hydrochloric acid to the gastric juice. It promotes the metamorphosis of tissue, raises the temperature, and increases the number of the red blood corpuscles. It is probable that scurvy, which is often attributed to the excessive use of salted meat, is rather the result of the absence of certain substances contained only in fresh meat and vegetables, than of the presence of chloride of sodium. A complete deprivation of salt seems to produce quite as disastrous results as an excessive use. Its strictly medical uses are limited, since it is hardly ever given internally as a drug, except for a placebo. If prescribed in dyspepsia, it would be as a condiment. Mineral waters containing it have been used with advantage, and among these should be reckoned sea-water, which it has been proposed, not only to administer as a drug, but to use in making bread. The use of chloride of sodium has been recommended in phthisis to improve the general nutrition. It has been used with alleged success in intermittent fever. A considerable quantity of salt (one ounce) mixed with warm water may be used as an emetic when no better is at hand. It is an antidote to nitrate of silver if an over-dose be taken. Sea-water may be used as a laxative, and a saline enema is more effectual than one of water. Common salt is an agent frequently employed to preserve the due ratio of salinity in fluids with reference to their exosmotic action, as in cases where a solution, consisting largely of common salt, is injected into the veins in collapse from cholera or from hemorrhage. Such a solution should contain in one thousand grammes (one liter) of water, five grammes of chloride of sodium, half a gramme of sulphate, fifteen centigrammes of phosphate, and twenty-one centigrammes of carbonate of sodium.* A solution of twenty grains of salt to the pint, one-fifth of one per cent., if used as a nasal douche, is less irritating than water alone, as it approximates more nearly the density of the saline solutions circulating in the mucous membrane. A much stronger solution is often used as a gargle in pharyngitis, tonsillitis, or diphtheria, or may be employed as a stimulating wash for various external lesions. Salt baths in-

* This is, with the exception of some phosphate of calcium and magnesium, the saline composition of the blood serum, as given by Hoppe-Seyler. Dr. Jennings, in the Lancet, September 16, 1882, gives the following solution for use as an intravenous injection in hemorrhage: Water, twenty ounces; chloride of sodium, fifty grains; chloride of potassium, three grains; sulphate of sodium and carbonate of sodium, each two and a half grains; phosphate of sodium, two grains. The mixed powders may be kept on hand, to be dissolved when the occasion arises.

crease the metamorphosis of tissue, and are to be looked upon as general tonics. Sea-bathing adds many important accessories to the mere contact of salt water with the skin, but the latter is not without effect. A warm salt bath is more rubefacient than one of water alone, and may be used for its derivative effects in headaches, uterine pains, etc. A hot bag of salt is often a soothing local application, and retains the heat a long time.

Dose.—Indefinite. A teaspoonful of dry salt may be given in hæmoptysis. An ounce, in considerable water, is likely to cause vomiting.

SODII HYPOPHOSPHIS.

HYPOPHOSPHITE OF SODIUM.

Sodæ Hypophosphis, Br. Add. ; *Natrum Hypophosphorosum*, *Hypophosphis Sodicus—Hyphosphite of Soda*, E. ; *Hypophosphite de Soude*, Fr. ; *Unterphosphorigsaures Natron*, G.

Shares in the supposed general stimulating effects of the other hypophosphites, and is given in cases of nervous exhaustion or depression, or in phthisis. It has some value as a tonic, but is almost invariably given with the other hypophosphites.

Dose.—Eight to fifteen grains, half a gramme to a gramme.

SODII HYPOSULPHIS.

HYPOSULPHITE OF SODIUM.

Natrum Subsulfurosum (*Hyposulfurosum*), P. G. ; *Hyposulphis Sodicus—Hyposulfite de Soude*, *Sulfite Sulfuré de Soude*, Fr. ; *Unterschwefligsaures Natron*, G.

Hyposulphite of sodium is an antiseptic and deodorizer. It is used externally, in lotion, in some skin diseases as a parasiticide, and by injection into various cavities to prevent decomposition. It may be given to prevent the dyspeptic symptoms which arise from the fermentation of food in the stomach. The theoretical advantages of the drug, in zymotic diseases, have not been sustained by experience. A lotion may be made of the strength of forty grains to the ounce, eight per cent.

Dose.—Fifteen grains, one gramme.

SODII IODIDUM.

IODIDE OF SODIUM.

Natrum Iodatum—Iodure de Sodium, Fr. ; *Jodnatrium*, G.

May be used instead of iodide of potassium, and, it is said, without producing its disagreeable effects ; but since the iodic acne and coryza

may be the results of the action of hydriodic acid or of iodine, this statement does not seem consistent with the other facts.

Dose.—Five to thirty grains, thirty-two centigrammes to two grammes (.32 to 2), in solution or with some syrup.

SODII NITRAS.

NITRATE OF SODIUM.

Sodæ Nitras, Br.; *Natrum Nitricum*, P. G.; *Nitras* (*Azotas*) *Sodicus*, *Nitrum Cubicum*—*Nitrate of Soda*, *Cubic Nitre*, E.; *Azotate* (*Nitrate*) *de Soude*, *Nitre Cubique*, *Nitre de Chili*, Fr.; *Chilisalpeter*, G.

Is a mild cathartic. The solution dissolves false membranes, and hence has been used by atomization in croup.

Dose.—One or two ounces.

SODII PHOSPHAS.

PHOSPHATE OF SODIUM.

Sodæ Phosphas, Br.; *Natrum Phosphoricum*, P. G.; *Phosphas Sodicus* (*Natricus*), *Sal Mirabile Perlatum*—*Phosphate of Soda*, E.; *Phosphate de Soude*, Fr.; *Phosphorsaures Natrum*, G.

A mild laxative with an alkaline reaction. It may be used for children, as it can be administered in milk, to which it imparts no disagreeable taste. When the discharges are green, this salt will usually correct the color and promote the return to the normal condition by neutralizing the excess of acid to which the color and the diarrhœa are due.

Dose.—Small, as an antacid for children, two to ten grains, twelve to sixty-four centigrammes (.12 to .64); as a purgative for an adult, one ounce, thirty grammes.

SODII PYROPHOSPHAS.

PYROPHOSPHATE OF SODIUM.

This salt is used in preparing the pyrophosphate of iron.

SODII SALICYLAS.

SALICYLATE OF SODIUM.

Salicylate of sodium owes its chief efficacy to salicylic acid. It has the advantage over the acid that it is more soluble and has less tendency to cause gastro-intestinal irritation, while after absorption it has precisely

the same action. It is not certain whether the base under these circumstances exerts any alkalizing effect; but as most of the acid is excreted in the acid form by the urine, its effect in this direction must be small. It is used in febrile diseases as an antipyretic, but chiefly in acute rheumatism, in exactly the same way as and with the same effects as the acid. In order to introduce the same amount of acid in the form of a salt, the dose must either be about one-half larger, or be given more frequently. It may be simply dissolved in water or mixed with a syrup.

Dose.—Five to fifteen grains, thirty-two centigrammes to one gramme (.32 to 1).

SODII SANTONINAS.

SANTONINATE OF SODIUM.

This new introduction to the Pharmacopœia furnishes a soluble form for the administration of santonin, for the action of which that title may be consulted. As an anthelmintic this preparation cannot theoretically be advised, as it is likely to be rapidly absorbed, and thus but a small quantity will be brought in contact with the worm. It is found, however, to act very well in this form. Singularly enough, the constitutional symptoms are less developed with this preparation than with santonin, which is, perhaps, accounted for by the more rapid elimination as well as absorption. The dose may consequently be larger.

Dose.—Eight to ten grains for an adult, fifty to sixty centigrammes (.50 to .60).

SODII SULPHAS.

SULPHATE OF SODIUM.

Sodæ Sulphas, Br.; *Natrum Sulfuricum*, P. G.; *Sulfas Sodicus* (*Natricus*), *Sal Mirabile Glauberi—Sulphate of Soda, Glauber Salts*, E.; *Sulfate de Soude, Sel de Glauber*, Fr.; *Glaubersalz*, G.

Sulphate of sodium is usually a cathartic, though in small doses and in a small quantity of water it may pass off by the urine. It has a rather bitter and disagreeable taste, and is comparatively little used at present. It may be employed in various gastric and hepatic derangements. Small doses are a useful corrigent to the action of morphine in dysentery.

Dose.—As a purgative, one-half an ounce to an ounce, fifteen to thirty grammes. For use in dysentery with morphine, eight grains, sixty-four centigrammes, after each movement of the bowels.

SODII SULPHIS.

SULPHITE OF SODIUM.

Natrum Sulfuriosum, Sulfis Sodicus (Natricus)—Sulfite de Soude, Fr.; *Schwefligsaures Natron*, G.

A disinfectant and deodorizer. Its action and uses are those of the other sulphites, hyposulphites, and sulphurous acid.

Dose.—Fifteen to sixty grains, one to four grammes.

SODII SULPHOCARBOLAS.

SULPHOCARBOLATE OF SODIUM.

Sulphophenate (Phenosulphonate) of Sodium, E.; *Sulphophénate de Soude*, Fr.; *Phenylschwefelsaures Natron*, G.

The mixture of sulphuric and carbolic acids seems to deprive each of them of its most irritating properties. This sulphocarbolate may be given in doses of fifteen or thirty grains without producing any marked symptoms; but it has been supposed that the carbolic acid, being set free in the body while sulphate of sodium is excreted by the urine, gives rise to the therapeutic but not the toxic action. This salt is antiseptic, but more feebly so than carbolic acid. It has been used in various zymotic and febrile diseases, but the results have not been such as to give it a high place as a remedy on clinical grounds, or to furnish much support to the theory just mentioned, upon which it was used. It is a good local application in putrid affections of the fauces, as in diphtheria, and may also be used internally in the same class of diseases. The application may be made in the form of a saturated solution or an insufflation.

Dose.—Fifteen to thirty grains, one to two grammes.

SPIGELIA.

SPIGELIA.

[Pinkroot.]

Spigélie du Maryland, Fr.; *Marylandische Spigelie*, G.

The active principle of this drug is a bitter, of which the more precise chemistry is unknown. It is an anthelmintic, and sometimes a cathartic. In large doses it may produce cerebral symptoms, such as dimness of vision, dilated pupil, and muscular spasms. Death is said to have occurred from its uses, but must be excessively rare, considering the great

frequency of its administration. It should be given with a cathartic. Senna is frequently chosen for this purpose.

Dose.—In powder, for a child, ten to twenty grains, sixty-four to one hundred and thirty centigrammes; for an adult, one to two drachms, four to eight grammes. An infusion of this amount, or the fluid extract, is a more convenient preparation.

SPIRITUS ÆTHERIS.

SPIRIT OF ETHER.

Spiritus Æthereus s. Liquor Anodynus Mineralis Hoffmanni, P. G.; *Æther Sulfuricus Alcoolisatus*, F. P.; *Éther Hydrique* (*Sulfurique*) *Alcoolisé*, *Liqueur Anodine d'Hoffman*, Fr.; *Hoffmanstropfen*, G.

This preparation may be useful if it is desired to give ether by the stomach. It is a stimulant, and to a certain extent anodyne.

Dose.—One to four fluidrachms, four to sixteen cubic centimeters, which should be mixed with sweetened water at the time of administration.

SPIRITUS ÆTHERIS COMPOSITUS.

COMPOUND SPIRIT OF ETHER.

[Hoffmann's Anodyne.]

Liqueur Nervine de Bang, Fr.; *Zusammengesetzter Aetherweingeist*, G.

The effects of the heavy oil of wine, which should distinguish this preparation from the preceding, are somewhat anodyne and narcotic. Unfortunately this rather expensive ingredient is often reduced much below the pharmacopœial proportions, or an inferior product substituted for it. Hoffman's anodyne is often used to procure sleep and allay slight spasmodic pains, and restlessness in cases where opium is undesirable, and also not infrequently in addition to the opium as a corrigent and adjuvant.

Dose.—Thirty minims to two drachms, two to eight cubic centimeters, in water.

SPIRITUS ÆTHERIS NITROSI.

SPIRIT OF NITROUS ETHER.

[Sweet Spirit of Nitre.]

Spiritus Nitri Dulcis, *Spiritus Nitrico-Æthereus*, E.; *Éther Azoteux Alcoolisé*, *Liqueur Anodine Nitreuse*, Fr.; *Versüsster Salpetergeist*, G.

This well-known febrifuge, when taken in the usual doses, produces no very obvious effects on the stomach, except those of a slight stimulant and

carminative. It increases the water, but not the solid constituents of the urine, and if the skin is kept warm, produces diaphoresis. Its vapor inhaled may produce serious symptoms, such as headache, giddiness, and some cyanosis. Death has taken place from inhaling a large quantity of vapor, disseminated in a room by the breaking of a package. Sweet spirit of nitre is used to relieve slight febrile symptoms, and to allay cough, as well as to increase the quantity of urine, and to relieve slight abdominal pain. It may be given in sweetened water.

Dose.—As a diaphoretic and febrifuge, twenty to thirty drops, frequently repeated; as a diuretic, half a drachm to a drachm, two to four cubic centimeters, usually with some other diuretic.

SPIRITUS AMMONIÆ.

SPIRIT OF AMMONIA.

Liquor Ammonii Caustici Spirituosus, P. G.; *Spiritus Ammoniaci Caustici Dyondii—Ammoniated Alcohol*, E.; *Alcoolé d'Ammoniaque, Liqueur d'Ammoniaque Vineuse*, Fr.; *Weingeistige Ammoniakflussigkeit*, G.

Combines the stimulant effects of ammonia with those of alcohol, but in the usual doses the latter ingredient can have comparatively little effect. Considerably diluted it may be used externally. It is little employed.

Dose.—Ten to thirty drops in water.

SPIRITUS AMMONIÆ AROMATICUS.

AROMATIC SPIRIT OF AMMONIA.

Alcoolat Ammoniacal Aromatique, Fr.; *Aromatischer Ammoniakgeist*, G.

Has nearly the same properties as the last preparation, but has the stimulant action as well as the agreeable taste and odor of several volatile oils. It may be used as a stimulant in fainting or nervousness, or may be added, as a corrigent, to medicines which are likely to cause gastric or intestinal irritation. It may be used for the expectorant effects of the carbonate of ammonia.

Dose.—Thirty to sixty drops, diluted.

SPIRITUS ANISI.

SPIRIT OF ANISE.

Alcoolat d'Anise, Fr.; *Anisgeist*, G.

For uses and properties, see Anise.

Dose.—One or two fluidrachms, four to eight cubic centimeters.

SPIRITUS AURANTII.

SPIRIT OF ORANGE.

A flavoring, and slight stimulant.

Dose.—To be regulated by the alcohol.

SPIRITUS CAMPHORÆ.

SPIRIT OF CAMPHOR.

Alcohol Camphoratus, F. P.; *Spiritus Camphoratus*, P. G.; *Tinctura Camphoræ—Tincture of Camphor*, E.; *Esprit de Camphre, Alcool Camphré*, Fr.; *Kampferspiritus*, G.

This solution may be used to obtain the effects of camphor internally. If dropped into water, the camphor will be precipitated, but can be taken at once, or retained in suspension, if desired, by some viscid medium. It may also be taken on a lump of sugar.

It is much used externally as a lotion, or ingredient of liniments. This is by no means the strongest possible camphor tincture. Ordinary alcohol dissolves seventy-five per cent., and absolute alcohol still more.

Dose.—Five to twenty drops. If it is to be used for large doses they may be ten times as large as those stated under camphor.

SPIRITUS CHLOROFORMI.

SPIRIT OF CHLOROFORM.

Alcoolé de Chloroforme, Fr.; *Chloroform-spiritus*, G.

This alcoholic solution of chloroform was formerly called chloric ether, and used for inhalation. It is employed at present simply as a convenient form for introducing chloroform into mixtures for internal use.

The **Dose** is stated as from half a fluidrachm to a drachm, two to four cubic centimeters, but if sufficiently diluted to obviate the irritating effects, considerably more might be given without danger.

SPIRITUS CINNAMOMI.

SPIRIT OF CINNAMON.

Alcoolé de Cannelle, Fr.; *Zimmtspiritus*, G.

Aromatic and stimulant.

Dose.—Eight to thirty drops.

SPIRITUS FRUMENTI.

WHISKEY.

Eau de Vie de Grains, Fr. ; *Kornbranntwein*, G.

This well-known beverage is one of the stronger alcoholic liquors, and is to be looked upon simply as a preparation of alcohol. The average strength in alcohol is between forty and fifty per cent. New whiskey contains a considerable proportion of amylic alcohol, or fusel oil, which tends to produce headache ; but time changes this alcohol to ethers, which give the peculiar flavor.

Dose.—Depends entirely upon the habits of the patient and the views of the physician. A quart may be fatal.

SPIRITUS GAULTHERIÆ.

SPIRIT OF GAULTHERIA.

Flavoring, aromatic, stimulant, and antiseptic.

Dose.—One or more drachms, if used for anything more than a flavor.

SPIRITUS JUNIPERI.

SPIRIT OF JUNIPER.

Alcoolat (*Esprit*) *de Genièvre*, Fr. ; *Wachholderspiritus*, G.

Stimulant and diuretic. It should be remembered that spiritus juniperi is *not* the officinal name of gin, although this preparation resembles it in composition.

Dose.—Thirty to sixty minims, two to four cubic centimeters.

SPIRITUS JUNIPERI COMPOSITUS.

COMPOUND SPIRIT OF JUNIPER.

A diuretic and stimulant. It is much weaker than the preceding preparation, both in alcoholic strength and in volatile oil ; hence it approximates much more closely to gin, and might be used for the same purposes and in the same doses.

Dose.—Must be regulated chiefly by the alcohol, but is stated as two to four fluidrachms, eight to sixteen cubic centimeters.

SPIRITUS LAVANDULÆ.

SPIRIT OF LAVENDER.

Alcoolat (*Esprit Eau*) *de Lavande*, Fr. ; *Lavendelspiritus*, G.

A perfume and flavoring. Is hardly used at all as a medicine. The former "compound spirit of lavender" is transferred to the list of tinctures.

Dose.—Thirty minims to a fluidrachm, two to four cubic centimeters.

SPIRITUS LIMONIS.

SPIRIT OF LEMON.

[Essence of Lemon.]

Alcoolat (*Esprit*) *de Citrons*, Fr. ; *Citronenessenz*, G.

A flavoring.

SPIRITUS MENTHÆ PIPERITÆ.

SPIRIT OF PEPPERMINT.

[Essence of Peppermint.]

Spiritus Menthæ Piperitæ Anglicus, P. G. ; *Alcoolat* (*Essence*) *de Menthe Poivrée*, F. ; *Englische Pfefferminzessenz*, G.

A flavoring and carminative. It may be used to relieve flatulence and slight gastric or colicky pains. A few drops produce a sense of coolness in the mouth and stimulate the flow of saliva. It may be given on sugar or in water.

Dose.—Fifteen to thirty drops.

SPIRITUS MENTHÆ VIRIDIS.

SPIRIT OF SPEARMINT.

[Essence of Spearmint.]

The uses of this essence are the same as those of the preceding preparation.

Dose.—Fifteen to forty-five drops.

SPIRITUS MYRCIÆ.

SPIRIT OF MYRCIA.

[Bay Rum.]

Is used as a wash or perfume.

SPIRITUS MYRISTICÆ.

SPIRIT OF NUTMEG.

[Essence of Nutmeg.]

Alcoolé (Esprit) de Muscade, Fr.; *Muskatspiritus*, G.

Used chiefly for flavoring.

Dose.—One or two fluidrachms, four to eight cubic centimeters.

SPIRITUS ODORATUS.

PERFUMED SPIRIT.

[Cologne Water.]

A perfume or ingredient of lotions; more elegant or stimulating than alcohol.

SPIRITUS VINI GALLICI.

BRANDY.

Spirit of French Wine, E.; *Eau de Vie, Cognac*, Fr.; *Franzbranntwein*, G.

This is one of the stronger alcoholic liquors. It possesses but little of physiological importance to distinguish it, except a flavor more agreeable to some persons than that of other liquors, and a slight degree of astringency. Much of the liquor called brandy is undoubtedly more or less factitious. The native brandies are probably more pure than most of the imported liquors which go by this name; but so long as no injurious ingredients are added, as they seldom are, the compound may, if satisfactory in taste and odor, be accepted without too rigid an inquiry as to its origin.

Dose.—Depends upon too many factors to be stated generally without regard to the individual case.

STAPHISAGRIA.

STAPHISAGRIA.

[Stavesacre.]

Semina Staphidis Agriæ s. Pedicularis—Stavesacre, E.; *Staphisaigre*, Fr.; *Stephanskörner, Läusekörner*, G.

These seeds contain an alkaloid, delphinine, which is in some respects like veratrine. The alkaloid produces on the skin or mucous membranes prickling, burning, and inflammation. When absorbed, it diminishes the activity of the heart and respiration, and kills by general adynamia. It

has been used externally in neuralgias in the form of an alcoholic solution or ointment, of the strength of one to sixty, thirty, or eight parts of the excipient. It has been suggested, but certainly not extensively used, for dropsy and rheumatism, and as an antipyretic. The seeds also contain two other alkaloids not known to have any therapeutic importance. Staves-acre is itself used externally in the form of a parasiticide ointment, one part of the powdered seeds to two parts each of olive oil and lard. The fatty oil of stavesacre, extracted by ether, contains the delphinine, and has also been used as a parasiticide in pediculosis.

Dose.—Of the alkaloid delphinine, one-twelfth to one-sixth of a grain, five milligrammes to one centigramme (.005 to .01).

STILLINGIA.

STILLINGIA.

[Queen's Root.]

Queen's Delight, Silver Leaf, E.; *Stillingie*, Fr., G.

Stillingia contains a resin which has not been carefully investigated. Like many other euphorbiaceæ it is an emetic, and is also considered "alterative." It has been used in syphilis, scrofula, and cutaneous diseases. A decoction is a convenient form, or the officinal fluid extract is better.

Dose.—Fifteen to thirty grains, one to two grammes, of the powder, or from one to two ounces, thirty to sixty cubic centimeters of a decoction (one to sixteen).

STRAMONII FOLIA.

STRAMONIUM LEAVES.

Thorn Apple Leaves, E.; *Feuilles de Stramoine*, Fr.; *Stechapfelblätter*, G.

STRAMONII SEMEN.

STRAMONIUM SEED.

Stramonia Semina, Br.; *Stramonium Seeds*, E.; *Semences (Graines) de Stramoine*, Fr.; *Stechapfelsamen*, G.

All parts of this plant contain two alkaloids, daturine, which is probably the same as hyoscyamine, and atropine. The seeds, as containing the larger proportion of the active principles, are used for the preparations, while the leaves are sometimes employed for smoking in a pipe or cigarette in asthma.

The action of stramonium is more closely allied to that of belladonna than of hyoscyamus. That is, it has a greater tendency to the production of excitement and delirium than of quietude or sleep. A description of its action on the heart and nervous system will be found under the title Atropine. Poisoning has not very unfrequently taken place from eating the seeds of this plant, which grows abundantly in waste places almost everywhere. Poisoning is attended with symptoms like those of belladonna, viz. : rapid pulse, a curious, active, and fantastic delirium, sometimes lasting for several days, of which, although the actions performed are voluntary, and apparently conscious, the patient remembers nothing. The pupils are dilated and a red eruption often appears.

There are few or none of the purposes of stramonium which cannot be subserved by belladonna, and *vice versa*. Other species of datura, as D. tatula and D. ferox, have the same action, and may be used for smoking in the same way as the D. stramonium. In poisoning from stramonium the same treatment should be put in force as is recommended under atropine.

Dose.—Of the leaves, two grains, thirteen centigrammes ; of the seeds, one grain, six centigrammes ; of daturine, one-sixtieth to one-thirtieth of a grain, one to three milligrammes (.001 to .003).

STRYCHNIA.

STRYCHNINE.

Strychninum, P. G. ; *Strychnine*, Fr. ; *Strychnin*, G.

STRYCHNINÆ SULPHAS.

SULPHATE OF STRYCHNINE.

Strychninum Sulfuricum—Sulfate de Strychnine, Fr. ; *Schwefelsaures Strychnin*, G.

This alkaloid, with another, brucine, which closely resembles it qualitatively, is the active principle of nux vomica and ignatia. It may be used to obtain all the effects of these drugs. It is absorbed and eliminated through the usual channels, of which the digestive canal is the most frequently used, although the hypodermic method is often, and the endermic occasionally employed.

In the mouth strychnia is probably the most bitter substance known. In the stomach it produces locally the effects of other bitters in causing hunger and promoting the flow of the digestive fluids.

A single ordinary or therapeutic dose usually gives rise to no symptoms, except to those just noted, or, if administered subcutaneously, to a

slight increase in the acuteness of vision. A larger dose produces tremor of the extremities, a little stiffness in the masticatory muscles, and in those of the neck and chest, together with some formication and hyperæsthesia. Still larger doses produce more stiffness of the muscles, and poisonous ones violent general muscular contractions, occurring in paroxysms, usually excited by some external stimulus, and closely resembling tetanus. During these paroxysms the muscles of respiration are firmly contracted, so that a condition of asphyxia results, from which, if long enough continued, the patient dies. The pulse is not very much affected, except as it may be by any violent exertion, although the blood-pressure is much raised, probably by the vaso-motor centre sharing in the general excitability. The sensorium is not directly affected by the poison, but may be disturbed by the asphyxia. Death may take place in animals from spasm of the glottis, but in man this does not happen, the causes of a fatal result being respiratory spasm, when death takes place during a paroxysm ; exhaustion, when it occurs between the paroxysms ; and finally, from a profound impression on the nervous centres,—and, perhaps, especially on that of respiration,—like that of the overwhelming attack of some acute disease, when the patient sinks rapidly under a very large dose with few or no convulsions. If small doses are frequently repeated, a similar condition to the less intense grades of poisoning may be more slowly developed, and will in this case counterfeit still more closely traumatic or idiopathic tetanus.

Experiments show that this spasmodic action depends upon increased excitability of the reflex centres in the spinal cord, and probably of some other ganglionic structures, as the retina, and, perhaps, the sympathetic ganglia. The nerves, sensory and motor, are comparatively little affected. One-twelfth of a grain, five milligrammes, of strychnine may produce slight symptoms of poisoning. The minimum fatal dose may be placed somewhere between one-half and two grains, three to twelve centigrammes. If fully and rapidly absorbed, one grain would probably be a fatal dose to persons of average size and strength and without treatment, although much larger doses than this have been recovered from.

The treatment of strychnine poisoning should consist in emptying the stomach as promptly as possible ; the administration of chemical antidotes, if any poison is left ; and the use of means to counteract the exciting effect of the drug on the spinal cord. Of the chemical antidotes, tannin is perhaps the best, or iodine in iodide of potassium may be used. For the latter indication, physostigma has been proposed, but not much used. Tobacco is an efficient antidote. Chloral and bromide of potassium are theoretically indicated and have been successfully employed. They are, however, somewhat slow in developing their full effects, and the interval

may be bridged over by the use of chloroform, or ether, by inhalation. Intravenous injection of chloral has been suggested. Curare, which may stop the spasms by paralyzing the motor nerves, is not a true antidote, since it does not counteract the effect of the strychnine on the spinal cord. It is an interesting fact that methyl-strychnine, instead of resembling strychnine physiologically, as it does closely in a chemical point of view, acts on the nervous system like curare. The post-mortem appearances of strychnine poisoning are not characteristic, although in a frog, which had been kept for a long time under its influence, the spinal cord was found congested.

Strychnine and its salts, as well as the preparations of nux vomica, are used as bitter tonics in cases of want of appetite and indigestion. For this purpose the tincture of nux vomica is a very convenient form, although combinations of this alkaloid with iron, with quinine, and the hypophosphites are often made. Strychnine probably exercises a general tonic and excitant effect upon the whole nervous system, as well as in the stomach. As a respiratory and cardiac stimulant, especially in conjunction with digitalis, it may be used in diseases of the heart attended with dyspnœa. It is used in the various forms of paralysis, especially the peripheral, like those from lead, mercury, alcohol, diphtheria, or from a severe bruise. It is to be more carefully employed in those of central origin, on account of the risk of aggravating inflammatory or congestive conditions which may be present. This is especially true of myelitis; but excellent results have been attained in this condition by the use of large doses, and it has been recently shown that such doses may be used at a much earlier period in the disease than has heretofore been thought advisable. The determination of the proper time to begin this treatment requires considerable discretion, and the earliest administrations should be somewhat tentative. Cerebral paralysis is little if at all benefited by strychnine. When administered in cases where a special group of muscles is paralyzed from cerebral lesion, the symptoms of its action are often first perceived in the paralyzed side or limb. Incontinence of urine, especially in the aged, where a deficiency of reflex activity on the part of the sphincter exists, is benefited by strychnine. Probably the favorable action of the alkaloid as an adjunct to cathartics, or even alone, in cases of chronic constipation, is attributable to its exciting effects upon the ganglionic plexuses in the intestine or the larger sympathetic ganglia in the abdomen. In some cases of sensory paralysis, but more particularly in that of the optic nerve, as in various toxic amauroses, it undoubtedly increases for a time the acuteness of vision, and it is alleged that in cases of well-marked optic atrophy the improvement is not only temporary, but may go on to cure. In these cases, improvement, if it is to take place at all, is usually manifest

after the first dose, if sufficiently large, and a short trial will suffice to show whether it is worth while to keep on. Strychnine has also been used in many other nervous affections in which it is difficult to see its applicability, but is, nevertheless, useful in some of them. The most important of these is epilepsy, and in particular that form which is least amenable to the bromides, viz., "petit mal."

Dose.—One-sixtieth increased to one-eighth of a grain, one to eight milligrammes (.001 to .008), or even more if the increase is gradual and the effects carefully watched; either in pill, or, if the bitter taste is not too disagreeable, in solution. The sulphate may be used subcutaneously.

STYRAX.

STORAX.

Styrax Præparatus, Br; *Styrax Liquidus*, P. G.; *Balsamum Styracis—Liquid Storax*, E.; *Styrax Liquide*, Fr.; *Flüssiger Storax*, G.

Styrax is a complex resin containing the fragrant styrol and cinnamic acid. It has been used, like copaiba, for its alterative effect on the mucous membrane, but is at present employed chiefly as an external application, diluted with alcohol and olive oil, in scabies, and as a dressing for ulcers. Balsam of Peru is often added to improve the odor and effect.

Dose.—Eight to twenty-three grains, half a gramme to a gramme and a half.

SULPHURIS IODIDUM.

IODIDE OF SULPHUR.

Sulfur Iodatum, P. G.; *Iduretum Sulfuris*, F. P.; *Iodure de Soufre*, Fr.; *Jodschwefel*, G.

This preparation is very easily decomposed, setting free iodine, which, of course, imparts to it irritant properties. It has been given internally in eczema, lepra, and lupus, and applied externally in the form of ointment in the same class of cases. It is little used at present. It may be made into an ointment with from three to twelve parts of excipient.

SULPHUR LOTUM.

WASHED SULPHUR.

Sulphur Depuratum, s. Flores Sulphuris Loti, P. G.; *Soufre Lavé*, Fr.; *Gereinigte Schwefelblumen*, G.

SULPHUR PRÆCIPITATUM.

PRECIPITATED SULPHUR.

Lac (*s. Magisterium*) *Sulphuris—Milk of Sulphur*, E.; *Soufre Précipité, Lait de Soufre*, Fr.; *Schwefelmilch*, G.

SULPHUR SUBLIMATUM.

SUBLIMED SULPHUR.

Flores Sulphuris—Flowers of Sulphur, E.; *Fleurs* (*Crême*) *de Soufre*, Fr.; *Schwefelblumen, Schwefelblüthe*, G.

These three preparations differ little in character, action, or uses. The sublimed sulphur retains a trace of sulphurous acid which is washed out in the "washed sulphur." The precipitated sulphur forms a finer powder than the others, and sometimes retains a trace of sulphides or sulphuretted hydrogen resulting from the manner of its preparation. In the stomach these nearly tasteless powders undergo no change, but in the intestines are partly changed into sulphides, which act as very mild laxatives, perhaps assisted by the mechanical stimulation of the unchanged sulphur, but which are partly absorbed, giving rise in the blood to sulphuretted hydrogen, perceptible, after continued use, in the perspiration and breath. A portion is oxidized, and increases the sulphates in the urine. These effects are more marked after the use of sulphur precipitatum, probably for the reason that in this preparation the sulphur is more finely divided, and hence more easily acted on by the intestinal secretions. It is not certain that sulphur has any other action on the functions or secretions.

Sulphur is used internally almost exclusively as a laxative, where it is desired to get a mild and totally unirritating effect, and a pultaceous rather than liquid stools, as in piles and rectal or anal irritation. It is usually combined with other mild cathartics, as in the "compound liquorice powder." It has also been given in rheumatism, but if the constitutional action is desirable, as in this disease and in mercurialism, the alkaline sulphides are more efficient. In lead-poisoning the laxative effect is an important addition to the constitutional, so that the sulphur might in this case deserve the preference.

Sulphur has been considered of great value in the treatment of hay fever, a piece of "roll brimstone" being held in the mouth; and in diphtheria, the sublimed sulphur being blown into the fauces. It is difficult to see how these procedures can be of great value, since the amount of sulphurous acid present, which must be the only active constituent, is extremely small in any case. Externally, sulphur has been very extensively used as a cure for itch, in the form of ointment. The number of for-

mulæ for sulphur ointments is large, and the explanation of their action not altogether satisfactory. It is to be noticed that all the more recent preparations, made with purified or precipitated sulphur, contain an alkaline ingredient, *i.e.*, a salt of potash, of ammonia, of lime, or soap. It is highly probable that the older sulphur ointments, made with sublimed sulphur, and without this addition, owed their efficacy as parasiticides to a larger amount of sulphurous acid than is now likely to be present. Sulphur alone does not kill the itch insect; but, on the other hand, salves made with addition of alkalies develop sulphides, which are rapid and efficient poisons to the parasite. The mechanical effect of sulphur in breaking up the burrows and dislodging the inhabitants, or prevent their supply of air, as well as similar results from the eczema produced, are also important factors in the curative action. Similar ointments are used in other affections of the skin. Sulphur fumigations are really applications of volatile sulphurous acid. Most sulphur baths and sulphur mineral waters are solutions of sulphuretted hydrogen, or the alkaline sulphides.

Dose.—As a laxative, one to four drachms, four to sixteen grammes. If a constitutional effect is desired, a smaller dose is to be given, and repeated several times in the day. For this latter purpose the precipitated sulphur is to be preferred. Any syrup may be used as a vehicle, as in the classic "brimstone and treacle" of Mrs. Squeers.

SUMBUL.

SUMBUL.

Racine de Sumbul, Fr.; *Sumbulwurzel, Moschwurzel*, G.

This possesses a musky odor, which gives it one of its common names, and bitter aromatic taste. It has the properties and uses of many other members of its class, having been used as a nervine on account of its volatile constituent, and as a mucous alterative on account of its resin. It is, however, little employed at present.

Dose.—In powder, eight to twenty-three grains, one-half to one and one-half gramme.

SUPPOSITORIA.

SUPPOSITORIES.

Suppositoires, Fr.; *Stuhlzäpfchen*, G.

Suppositories form a convenient means of applying drugs to the rectum or vagina, where they may produce either a purely local effect, as in

the case of astringents or antiseptics, or a general action due to absorption, as in the case of opiates or other neurotics or mercurials. Their absorption is probably a little slower than in the case of drugs given by the mouth, but rather on account of the excipient employed than from the locality. It is safer, however, when powerful drugs are thus administered, not to exceed the dose which would be proper if given by the mouth. Urethral suppositories are a convenient means of making topical application. They may be made with glycerine and gelatine, as well as with the officinal excipient.

SYRUPUS.

SYRUP.

Syrupus Simplex, P. G.; *Syrupus Sacchari s. Albus—Simple Syrup*, E.; *Sirop de Sucre, Sirop Simple*, Fr.; *Weisser Syrup*, G.

This simple solution of sugar is used as an ingredient in many preparations, and often enters into prescriptions. Its uses are to cover a disagreeable taste or to protect active ingredients from decomposition.

SYRUPUS ACACIÆ.

SYRUP OF ACACIA.

Syrupus Gummosus, P. G.; *Sirop de Gomme*, Fr.; *Gummisyrup*, G.

Demulcent, or a vehicle in mixtures to hold in suspension insoluble ingredients. The syrup becomes acid much less rapidly than the "mucilage of acacia."

SYRUPUS ACIDI CITRICI.

SYRUP OF CITRIC ACID.

Sirop d'Acide Citrique, Fr.; *Citronsauressyrup*, G.

A flavoring, or, diluted with water, a beverage when lemon syrup is not to be had.

SYRUPUS ACIDI HYDRIODICI.

SYRUP OF HYDRIODIC ACID.

Hydriodic acid is not directed in the Pharmacopœia, on account of its great liability to change by the development of free iodine. It may be prepared extemporaneously by the following recipe: Iodide of potassium, two hundred and nine and three-fourths grains, dissolved in water, three drachms; tartaric acid in crystals, one hundred and ninety and one-fourth

grains, in water, three drachms. Mix the solutions, and after cooling in ice-water for an hour, decant or filter from the bitartrate of potash and add water to make two ounces: each fluidrachm represents ten grains of iodine. Or iodide of potassium, grammes sixteen and a half; crystallized tartaric acid, grammes fifteen; each to be dissolved in fifteen cubic centimeters of water, treated as before, and the product brought up to cubic centimeters one hundred and twenty-six. This will give ten centigrammes of acid to each cubic centimeter of solution, and is ten times stronger than the syrup. It is, however, subject to rapid change, and as it would require to be much diluted, presents no special advantages over the syrup. Hydriodic acid may be used instead of iodide of potassium, especially in asthma and bronchitis. It is much more easily administered, and produces similar effects.

The **Dose** of the syrup may be from one drachm, or four grammes, containing about two-thirds of a grain, or four centigrammes, of hydriodic acid to one ounce, or thirty grammes, containing nearly five grammes, or thirty centigrammes. These doses correspond to about forty-six minims, and to a little over six fluidrachms respectively.

SYRUPUS ALLII.

SYRUP OF GARLIC.

Syrup d'Ail, Fr.; *Knoblauchsyrup*, G.

This is used chiefly as a stimulant expectorant for children.

Dose.—A teaspoonful may be given to a child a year old.

SYRUPUS ALTHÆÆ.

SYRUP OF ALTHÆA.

A mucilaginous demulcent.

SYRUPUS AMYGDALÆ.

SYRUP OF ALMOND.

Syrupus Emulsivus, Sirop d'Orgeat (d'Amandes, Emulsif), Fr.; *Mandel-syrup*, G.

A demulcent and flavoring, which may be supposed to have an effect in diminishing local irritation in the fauces, or a general sedative action due to the hydrocyanic acid contained therein. This, however, is exceedingly small.

Dose.—Indefinite.

SYRUPUS AURANTII.

SYRUP OF ORANGE.

Used simply for its flavor in mixtures, etc. Its somewhat bitter and pronounced taste make it a good vehicle for drugs which possess some pungency of their own, as, for instance, chloral.

SYRUPUS AURANTII FLORUM.

SYRUP OF ORANGE FLOWERS.

A delicate, but to some persons sickish, flavoring.

SYRUPUS CALCII LACTOPHOSPHATIS.

SYRUP OF LACTOPHOSPHATE OF CALCIUM.

In this preparation the phosphate of lime is dissolved in lactic acid without entering into the chemical combination suggested by its name, and is supposed to be more easily absorbed. The phosphates are apparently highly important for animal as well as vegetable nutrition, and it is claimed for this preparation that it promotes not only the growth of bone, but acts as a general nutrient tonic. It is often combined with other tonics and restoratives, especially cod-liver oil. It should not be given to infants with their milk, on account of its acidity.

Dose.—One fluidrachm to one fluidounce, four to sixteen cubic centimeters.

SYRUPUS CALCIS.

SYRUP OF LIME.

Liquor Calcis Saccharatus, Br.; *Saccharated Solution of Lime*, E.; *Saccharate* (*Sucrate*) *de Chaux Liquide*, Fr.; *Kalksaccharat-Lösung*, G.

Water containing sugar dissolves a much larger proportion of lime than simple water. This may be used somewhat diluted as an antacid, and may be added to the milk of children or persons with irritable stomachs in much less than the dose required of lime-water. It is said to be better borne than lime-water. It has also been proposed for use in acute rheumatism. It may be used as an antidote to carbolic or oxalic acid in poisoning.

Dose.—Fifteen minims to a teaspoonful, one to five cubic centimeters, diluted.

SYRUPUS FERRI BROMIDI.

SYRUP OF BROMIDE OF IRON.

The bromide of iron is irritant in large doses, but has been used in various diseases where iron is indicated. Possibly the bromine may modify somewhat its effect in cases where its peculiar action on the nervous system is called for, as in hysteria with anæmia.

Dose.—Eight to forty-five grains, one-half to three grammes, or about six to thirty five minims.

SYRUPUS FERRI IODIDI.

SYRUP OF IODIDE OF IRON.

Syrupus Ferri Iodati, P. G.; *Sirop d'Iodure de Fer*, Fr.; *Eisenjodür-syrup*, G.

This syrup is supposed to combine the activity of iron and of iodine, and to be especially indicated in the scrofulous diathesis, but its virtues are chiefly those of the iron.

Dose.—Eight to forty-five grains, one-half to three grammes, or about six to thirty-five minims.

SYRUPUS FERRI QUININÆ ET STRYCHNIÆ PHOSPHATUM.

SYRUP OF THE PHOSPHATES OF IRON, QUININE, AND STRYCHNINE.

This syrup is a convenient form for administering these powerful tonics together.

Dose.—From one to two fluidrachms, four to eight cubic centimeters. Five grammes, equalling a very little less than four cubic centimeters, or a small teaspoonful, contain one-thirtieth of a grain, or two milligrammes, of strychnia and about one grain sixty-six milligrammes each of quinine and phosphate of iron.

SYRUPUS HYPOPHOSPHITUM.

SYRUP OF HYPOPHOSPHITES.

A convenient form for preserving and administering the hypophosphites (for the effects of which see the articles on Hypophosphite of Calcium, Potassium, and Sodium).

Dose.—Two to eight drachms, eight to thirty-two grammes, corresponding to seven to twenty-eight grains, or from forty-eight to one

hundred and eighty-eight centigrammes (.48 to 1.88) of the mixed hypophosphites. Using fluidrachms and cubic centimeters instead of the weights which they approximate, would make the doses given equal to about eight or nine to thirty-seven grains, or sixty to two hundred centigrammes (.60 to 2.00).

SYRUPUS HYPOPHOSPHITUM CUM FERRO.

SYRUP OF HYPOPHOSPHITES WITH IRON.

Dose.—The same as of the preceding.

SYRUPUS IPECACUANHÆ.

SYRUP OF IPECAC.

Sirop d'Ipecacuanha, Fr. ; *Ipecacuanhasyrup*, G.

Used as an emetic and expectorant, chiefly for children.

Dose.—As an emetic for an adult, half an ounce to an ounce, sixteen to thirty grammes ; for a child, half a drachm to a drachm, two to four grammes, repeated once or twice. If these are taken as fluid measures instead of by weight, the amount of ipecac contained will be about one-third larger.

As an expectorant the dose is to be reckoned in minims, from two to thirty, or centigrammes, from twelve to two hundred (.12 to 200).

SYRUPUS KRAMERIÆ.

SYRUP OF KRAMERIA.

Syrupus Ratanhæ—Sirop de Ratanhia, Fr. ; *Ratanhiasyrup*, G.

An astringent in diarrhœa.

Dose.—For an adult, a fluidounce, or thirty cubic centimeters ; for a child, from fifteen minims, a cubic centimeter, upward.

SYRUPUS LACTUCARII.

SYRUP OF LACTUCARIUM.

A very feeble hypnotic.

Dose.—Two fluidrachms, eight cubic centimeters, and upward.

SYRUPUS LIMONIS.

SYRUP OF LEMON.

An agreeable flavoring, as a vehicle or for a beverage.

Dose.—Indefinite.

SYRUPUS PICIS LIQUIDÆ.

SYRUP OF TAR.

This is simply a sweetened tar-water, which, however, is made with hot instead of cold water, and is consequently richer in the essential constituents of the tar. It may be used like tar, as a stimulant or alterative, in chronic inflammations of the respiratory and urinary mucous membranes.

Dose.—Should be somewhat less than that of tar-water, perhaps half an ounce, fifteen cubic centimeters, every two or three hours, a watch being kept for over-irritation of urinary organs, or poisoning like that from carbolic acid.

SYRUPUS PRUNI VIRGINIANÆ.

SYRUP OF WILD CHERRY.

Sirop d'Écorce de Cérisier, Fr.; *Wildkirschenrindensyrup*, G.

Chiefly used in cough mixtures on account of the small amount of hydrocyanic acid contained. It is somewhat astringent and may be used in diarrhœa.

Dose.—One to four fluidrachms, four to sixteen cubic centimeters.

SYRUPUS RHEI.

SYRUP OF RHUBARB.

A cathartic, differing from the preparations of the same name in the last edition by the presence of cinnamon and carbonate of potassa.

Dose.—For an infant, a fluidrachm, four cubic centimeters.

SYRUPUS RHEI AROMATICUS.

AROMATIC SYRUP OF RHUBARB.

Gewürzter Rhabarbersaft, G.

A cathartic for children in diarrhœa from irritating ingesta.

Dose.—One fluidrachm, four cubic centimeters or upward, when a full cathartic action is desired.

SYRUPUS ROSÆ.

SYRUP OF ROSE.

Used for flavoring and coloring. Slightly astringent.

SYRUPUS RUBI.

SYRUP OF RUBUS.

Slightly astringent.

Dose.—One or two fluidrachms.

SYRUPUS RUBI IDÆI.

SYRUP OF RASPBERRY.

Flavoring for medicines or beverages.

Dose.—Indefinite.

SYRUPUS SARSAPARILLÆ COMPOSITUS.

COMPOUND SYRUP OF SARSAPARILLA.

Sirop Sudorifique, Fr.

Somewhat diaphoretic. Used chiefly as a vehicle for iodide of potassium.

Dose.—One to four fluidrachms, diluted.

SYRUPUS SCILLÆ.

SYRUP OF SQUILL.

Meerzwiebelsyrup, G.

This syrup is used chiefly in the treatment of bronchitis and croup. The smaller doses are simply expectorant, while the larger ones, if repeated, cause vomiting, which in the case of children suffering from this affection is often desirable.

Dose.—Fifteen minims to one drachm, one to four cubic centimeters, as an expectorant for an adult, or emetic for a child.

SYRUPUS SCILLÆ COMPOSITUS.

COMPOUND SYRUP OF SQUILL.

[Hive Syrup. Croup Syrup.]

Sirop de Scille Composé, Fr.; *Zusammengesetzer Meerzwiebelsyrup*, G.

This well-known preparation is used in the same class of cases as the last. It is more nauseant and depressing, and like all the depressing

drugs should be used with great caution, if at all, in membranous or diphtheritic croup.

Dose.—Ten to thirty minims, eighty to two hundred and forty centigrammes (.80 to 2.40), which may be repeated according to the effect desired, frequently if vomiting is indicated. Adults may take larger doses, less frequently repeated, in bronchitis.

SYRUPUS SENEGÆ.

SYRUP OF SENEGA.

Sirop de Polygala, Fr.

Is used in the later stages of bronchitis.

Dose.—One or two fluidrachms, four to eight cubic centimeters.

SYRUPUS SENNÆ.

SYRUP OF SENNA.

A mild cathartic for children.

Dose.—One to four fluidrachms, four to sixteen cubic centimeters.

SYRUPUS TOLUTANUS.

SYRUP OF TOLU.

Sirop Balsamique, Fr.

A flavoring used in cough-mixtures. It is possible that the tolu may, in process of elimination through the bronchial mucous membrane, have some slight effect akin to that of volatile oils.

Dose.—Indefinite.

SYRUPUS ZINGIBERIS.

SYRUP OF GINGER.

Ingwersyrup, G.

A flavoring and adjuvant, chiefly with saline and irritant cathartics, carminatives, or with bromide of potassium.

Dose.—One drachm, four cubic centimeters and upward.

TABACUM.

TOBACCO.

Tabaci Folia, Br.; *Folia Nicotianæ*, P. G.; *Leaf Tobacco*, E.; *Nicotiane, Tabac*, Fr.; *Tabaksblätter*, G.

Tobacco contains an alkaloid, nicotine, and a peculiar "tobacco camphor," nicotianin, which seems to have somewhat similar properties. The various forms in which tobacco is prepared for use, and probably also the soil and climate in which it is grown, cause it to vary in strength, and it is, moreover, by no means certain that the activity of tobacco smoke is due to the same active principle as that of tobacco itself.

Nicotine is one of the most poisonous substances known. It is absorbed from the mucous and cutaneous surfaces, and even the unbroken skin, and fatal poisoning has taken place from its external application, even in small quantity. It produces local irritation of the fauces, œsophagus, and stomach, and, soon after its absorption, develops symptoms pointing to an action on the brain, first, in the direction of stimulation, and afterward of narcotism. At first nicotine increases the frequency of the heart's action and the arterial pressure, while later the heart becomes irregular and feeble. The rapidity of the pulse which has been increased by nicotine is again increased by atropine. The respiration undergoes similar changes to those of the pulse. Nausea and vomiting and increased intestinal peristalsis are among the most characteristic effects of this drug.

Tobacco itself produces similar effects to those of nicotine, but somewhat less rapid in their onset, and affecting more distinctly the intestinal canal. They are obviously, in most cases, not likely to go on to the extreme result, as when the strong alkaloid is administered to animals, or in the not very frequent instances where an overdose of tobacco is given by the mouth or rectum. The chronic use of tobacco in excess is likely to give rise to pharyngitis, dyspepsia, and nervous palpitation of the heart.

The medicinal uses of tobacco are limited. It has been used as a parasiticide and a topical application in some skin diseases, in domestic as well as in professional practice, but it is a dangerous remedy which possesses no advantages over many safer ones. It has been also employed as an emetic, but should be considered merely as a resort in an emergency when there is no opportunity to procure a safer and equally efficient means of emptying the stomach. It has been given both by the stomach, and more particularly in the form of enemata, in intestinal obstruction and hernia. The usual explanation of its action in these cases, *i.e.*, that it relaxes spasm, is not admissible in all instances, since, on the one hand,

spasm is not always an important element in the disease; and, on the other, tobacco increases, rather than decreases, peristalsis. In another set of cases, however, where the obstruction is due to mechanical accumulations from local paralysis of the intestinal walls, the physiological action of tobacco is indicated.

Tobacco has been administered in whooping-cough and asthma, but less dangerous remedies are to be preferred. In asthmatic persons unaccustomed to smoking, a cigar may give the same sort of relief that comes from stramonium or nitre paper. In some persons smoking acts as a useful laxative. It seems to be an antidote to strychnia, and, perhaps, a remedy in other forms of tetanus.

Tobacco may be administered in the form of a decoction, or even pills. Nicotine is not used in medicine, but has been recommended in tetanus and strychnia-poisoning in the dose of ten or fifteen milligrammes (.010 or .015) by the stomach, or one milligramme (.001) subcutaneously. Under other circumstances nicotine, if used at all, should not be given in more than from one to three milligrammes (.001 to .003) doses.

Dose of tobacco, internally, from half a grain to two and one-half grains, three to fifteen centigrammes (.03 to .15); a decoction of from eight to fifteen grains, half a gramme to one gramme, may be used by enema. Five or six grains are emetic.

TAMARINDUS.

TAMARIND.

Pulpa Tamarindorum Cruda s. Fructus Tamarindorum, P. G.; *Tamarin*, Fr.; *Tamarindenmus*, G.

Tamarinds contain vegetable acids, sugar, and mucilage. The pulp is used with other cathartics. Tamarind water is employed chiefly as an agreeable acidulous drink. The pulp may be boiled with milk (one ounce to one pint, thirty grammes to one-half liter) to make a whey for the same purpose.

TANACETUM.

TANSY.

Summitates Tanaceti—Tanaisie, Herbe aux Vers, Fr.; *Rainfarn, Wurmkraut*, G.

The activity of tansy depends upon its volatile oil, which is among the more powerful and irritating members of this class. It is strongly diuretic. The herb and the oil are legitimately used in amenorrhœa, but perhaps as frequently in order to produce abortion, which, like many other

intestinal irritants and excitants to the nervous system, they may do. A case of death has been recorded in a woman who took the oil for this purpose, but without success, so far as the dislodgement of the fœtus was concerned.

Dose.—Powder, from fifteen grains to two drachms, one to four grammes, in decoction. Of the oil, one to four drops.

TARAXACUM.

TARAXACUM.

[Dandelion.]

Pissenlit, Dent de Lion, Fr.; *Löwenzahn*, G.

Dandelion root contains a bitter principle and inulin. It has been used with special reference to hepatic affections, but there is no evidence that it has any other action than that of a bitter tonic. A decoction may be given in doses of one to three fluidounces, thirty to ninety cubic centimeters. The extract is often used as an excipient in pills.

TEREBINTHINA.

TURPENTINE.

TEREBINTHINA CANADENSIS.

CANADA TURPENTINE.

[Balsam of Fir.]

Balsamum Canadense—Canada Balsam, E.; *Baume du Canada*, Fr.; *Canadischer Terpentin*, G.

Turpentine may be employed for external use in plasters, and has been given internally in the same kind of cases as many other oleo-resins, that is, as a stimulant and alterative to the mucous membranes.

Dose.—Fifteen to sixty grains, one to four grammes.

THUJA.

THUJA.

[Arbor Vitæ.]

Arbre de Vie, Fr.; *Lebensbaum*, G.

This indigenous tree is astringent and aromatic. A decoction from its leaves has been used in various diseases where the volatile oil may be considered the active principle. The oil itself has been employed as a

vermifuge. An ointment prepared from it is somewhat irritant, like that from the kindred savine, and has been used in rheumatism.

Dose.—One drachm, four grammes, in infusion. A fluid extract would be better.

THYMOL.

THYMOL.

This crystalline solid is the most important constituent of the oil of thyme, and is contained therein in the proportion of fifty per cent., more or less. Many specimens of commercial oil of thyme have had the thymol removed. It is a powerful antiseptic, resembling in its therapeutic action, as well as in its chemical affinities, phenol or carbolic acid. It is much less poisonous than the latter, and is, moreover, antiseptically active in a smaller dose, which gives it decided advantages. On the other hand, it is more difficult to make into solutions for ordinary use, and a solution of one in a thousand, made with the aid of a little alcohol, is by no means devoid of irritating properties. The smell, which is ordinarily considered less disagreeable than that of carbolic acid, is, when strong, decidedly sickish, and the choice between it and carbolic acid becomes a matter of individual preference. In hospital practice it has the disadvantage of attracting flies. It may, however, be used for all the external and surgical purposes of carbolic acid, in the strength of one or two in a thousand. Such a solution requires the aid of alcohol. Thymol dissolves well in a chloral solution, or in one of soda or potassa. An ointment of one to six per cent., five to thirty grains to the ounce of petrolatum, may be used in skin diseases.

TINCTURA ACONITI.

TINCTURE OF ACONITE.

Teinture de Racine d'Aconit, Fr.; *Eisenhuttinktur*, G.

The Pharmacopœia has been greatly improved by having at present but one alcoholic preparation of any part of the aconite plant. The tinctures of the leaves are weak and uncertain, and the tinctures made from the root, which have been, and are used, vary widely in strength, as will be seen from the following figures, which represent the number of parts of aconite used in preparing one hundred parts of tincture by weight: U. S. P., 1880, 40; U. S. P., 1870, 47.6; British, 16; German, 10; Fleming's, 79; Linimentum Aconiti, Br. (a very strong tincture), 108. A French "alcoolature" is made with equal parts of the fresh root and of alcohol, and should be a very strong preparation, yet it is recommended in as large,

or larger, doses as would be given of our officinal tincture. The officinal tincture may be a very feeble preparation. The author has taken one hundred drops of so-called tincture of aconite root with barely perceptible effect.

The **Dose** is frequently stated as five to ten drops, three times a day, and this might be used in rheumatism or neuralgia, but in febrile disorders it is much better, if a trustworthy preparation is used, to give a drop, or even a fraction of a drop, every fifteen or thirty minutes until the peculiar tingling of the lips and tongue is perceived, or a moisture appears on the skin and the pyrexia is diminished. It should be largely diluted with water; half a drop in a teaspoonful is perceptible but not disagreeable.

TINCTURA ALOES.

TINCTURE OF ALOES.

Aloetinktur, G.

This preparation is three times as strong as that of the last edition.

Dose.—One to four fluidrachms, four to sixteen cubic centimeters, as a purgative; eight to fifteen minims, one-half to one cubic centimeter, twice a day, as a laxative.

TINCTURA ALOES ET MYRRHÆ.

TINCTURE OF ALOES AND MYRRH.

Elixir Proprietatis Paracelsi, P. G.; *Elixir de Propriété*, Fr.; *Aloëelixir*, G.

This tincture is purgative and has a special tendency to congest the pelvic organs, the uterus and its appendages included. Hence it is especially useful when a cathartic becomes necessary in the course of chlorosis or amenorrhœa. It may, however, be used as a purgative irrespective of these conditions.

Dose.—One to two fluidrachms, four to eight cubic centimeters (4 to 8).

TINCTURA ARNICÆ FLORUM.

TINCTURE OF ARNICA FLOWERS.

[Tinctura Arnicæ, *Pharm.*, 1870.]

This once popular tincture is used almost entirely as an external application in bruises, sprains, etc. It has been found that under this treatment a bruise loses its color and swelling nearly as fast as with the alcohol alone. It is liable to produce eczema. If used internally, the **Dose** would be from thirty minims to two fluidrachms, two to eight cubic centimeters.

TINCTURA ARNICÆ RADICIS.

TINCTURE OF ARNICA ROOT.

Teinture d'Arnica, Fr.; *Arnikatinktur*, G.

Dose.—Two to five fluidrachms, eight to twenty cubic centimeters.

TINCTURA ASAFŒTIDÆ.

TINCTURE OF ASAFETIDA.

Teinture d'Ase-fétide, Fr.; *Stinkasanttinktur*, G.

When added to water produces a milky mixture.

Dose.—Thirty minims to one fluidrachm, two to four cubic centimeters.

TINCTURA AURANTII AMARI.

TINCTURE OF BITTER ORANGE PEEL.

[TINCTURA AURANTII, *Pharm.*, 1870.]

A flavoring.

Dose.—One or two teaspoonfuls.

TINCTURA AURANTII DULCIS.

TINCTURE OF SWEET ORANGE PEEL.

A flavoring.

Dose.—One or two teaspoonfuls.

TINCTURA BELLADONNÆ.

TINCTURE OF BELLADONNA.

Belladonnatinktur, G.

This preparation, made from dried leaves, is not altogether constant in its effects. The active dose must be sought by beginning with a minimum and working upward until some dryness of the throat and dilatation of the pupils is perceived.

Dose.—Eight to thirty minims, one-half to two cubic centimeters.

TINCTURA BENZOINI.

TINCTURE OF BENZOIN.

Teinture de Benzoin, Fr. ; *Benzoëtinktur*, G.

This and the following tinctures are precipitated by water, but are frequently mixed with it. They are used internally in catarrhal affections, and may be also administered by atomization. A few drops in hot water makes an agreeable and soothing inhalation. Externally they are applied to many bruises, abrasions, bed-sores, etc., forming a thin pellicle of resin. Pills may be washed with this tincture to protect them for a time from solution. Diluted with water this tincture is used as a cosmetic.

Dose.—Thirty minims to a fluidrachm, two to four cubic centimeters.

TINCTURA BENZOINI COMPOSITA.

COMPOUND TINCTURE OF BENZOIN.

Tinctura Balsamica, Balsamum Commendatoris, Elixir Traumaticum—Teinture Balsamique, Baume du Commandeur de Permes, Fr. ; *Persischer Wundbalsam*, G.

The uses and dose are those of the preceding tincture. This tincture represents many mediæval preparations, which were used both externally and internally.

TINCTURA BRYONIÆ.

TINCTURE OF BRYONIA.

An active purgative. The active principle of bryonia is soluble in alcohol.

The **Dose,** which corresponds to the doses of the dried root usually stated, is from two to ten fluidrachms, or eight to forty cubic centimeters.

TINCTURA CALENDULÆ.

TINCTURE OF CALENDULA.

Has been used as an application to wounds and bruises, which it is said to protect from inflammation and suppuration.

It may be used in doses limited chiefly by the amount of alcohol they contain.

TINCTURA CALUMBÆ.

TINCTURE OF CALUMBA.

Kolombotinktur, G.

A bitter tonic, weaker than in the last edition.

Dose.—One to six fluidrachms. If a large dose of the bitter be desired, however, it is better to make the mixture to consist partly of an infusion or fluid extract.

TINCTURA CANNABIS INDICÆ.

TINCTURE OF INDIAN CANNABIS.

[TINCTURA CANNABIS, *Pharm.*, 1870.]

It is not certain whether this preparation will be preferable, as to uniform activity, to that made with the resin. It is somewhat weaker in its proportion of resin, but it would be safe to begin with the same dose as of the former tincture, and increase until its effects are perceptible.

Dose.—Forty drops, or one and a half cubic centimeter.

TINCTURA CANTHARIDIS.

TINCTURE OF CANTHARIDES.

Spanischfliegentinktur, G.

This is the preparation usually employed when it is desired to administer cantharides internally. If an overdose is given it will cause great gastro-intestinal irritation, as well as inflammation of the kidneys and bladder, with sympathetic irritation of the genital organs. It is sometimes used as a diuretic, and also as an emmenagogue. Externally this tincture may be applied as an irritant; but for blistering, the other preparations are more convenient. In small proportions it is used in hair-washes to stimulate the scalp.

Dose.—Three drops to a fluidrachm, one-half to four cubic centimeters, three times a day in some mucilaginous vehicle.

TINCTURA CAPSICI.

TINCTURE OF CAPSICUM.

Teinture de Piment des Jardin, Fr.; *Spanischpfeffertinktur*, G.

A cutaneous and gastric irritant. It may be used externally for purposes of counter-irritation, and internally as a stimulant to digestion.

Dose.—Eight to one hundred and twenty minims, one-half to eight cubic centimeters, well diluted.

TINCTURA CARDAMOMI.

TINCTURE OF CARDAMOM.

Carminative.

Dose.—One or two fluidrachms, four to eight cubic centimeters.

TINCTURA CARDAMOMI COMPOSITA.

COMPOUND TINCTURE OF CARDAMOM.

Zusammengesetzte Kardamomentinktur, G.

Carminative.

Dose.—One or two fluidrachms, four to eight cubic centimeters.

TINCTURA CATECHU COMPOSITA.

COMPOUND TINCTURE OF CATECHU.

[Tinctura Catechu, *Pharm.*, 1870.]

Astringent. It is used internally in diarrhœa with chalk mixture. It should not be given with iron. Externally it may be applied to fissures and ulcers, as of the nipples or of the anus.

Dose.—Fifteen minims to two fluidrachms, one to eight cubic centimeters.

TINCTURA CHIRATÆ.

TINCTURE OF CHIRATA.

Teinture de Chirette, Fr.

A bitter tonic.

Dose.—Thirty minims to two fluidrachms, two to eight cubic centimeters.

TINCTURA CIMICIFUGÆ.

TINCTURE OF CIMICIFUGA.

Those who have the most confidence in cimicifuga state that preparations should be made from the fresh root, which is not the case with this tincture.

Dose.—One-half to two fluidrachms, two to eight cubic centimeters.

TINCTURA CINCHONÆ.

TINCTURE OF CINCHONA.

Teinture de Quinquina, Fr.

A bitter tonic. Used to obtain the effects of the smaller doses of the cinchona alkaloids, but not usually for an antiperiodic action.

Dose.—One or two fluidrachms, four to eight cubic centimeters, representing not far from two to four centigrammes, or one or two thirds of a grain of the mixed alkaloids.

TINCTURA CINCHONA COMPOSITA.

COMPOUND TINCTURE OF CINCHONA.

[Huxham's Tincture of Bark.]

More frequently used than the last preparation. It exercises the stimulating properties of serpentaria, as well as those of cinchona. It is used chiefly in the typhoid condition.

Dose.—One to four fluidrachms, four to sixteen cubic centimeters.

TINCTURA CINNAMOMI.

TINCTURE OF CINNAMON.

Teinture de Cannelle, Fr.

Slightly astringent, carminative, and aromatic.

Dose.—Half a fluidrachm to two fluidrachms, two to eight cubic centimeters.

TINCTURA COLCHICI.

TINCTURE OF COLCHICUM.

Teinture de Semences de Colchique, Fr.

May be used to obtain the peculiar effects of colchicum, although there seems no necessity for both this preparation and the wine of colchicum seed, the doses of each, as well as the alcoholic strength, being for all practical purposes the same.

Dose.—Fifteen to thirty minims, one to two cubic centimeters, or one-fourth as many more drops as minims.

TINCTURA CONII.

TINCTURE OF CONIUM.

Teinture Ciguë, Fr. ; *Schierlingstinktur*, G.

This is undoubtedly a much more efficient preparation than that of the same name in the last edition of the Pharmacopœia. One part is about equal to one and a half parts of the succus of the British Pharmacopœia. It is of about one eighth of the strength of the fluid extract. It would be safer to begin with a

Dose of sixty minims, four cubic centimeters, although more than this would, in most cases, be required to produce a physiological effect.

TINCTURA CROCI.

TINCTURE OF SAFFRON.

Teinture de Safran, Fr. ; *Safrantinktur*, G.

Used for coloring. The quantity necessary to produce any marked effect from the saffron would contain an amount of alcohol sufficient to conceal its activity.

TINCTURA CUBEBÆ.

TINCTURE OF CUBEB.

Kubebentinktur, G.

If given in large doses, exercises some of the specific effects of cubeb. The smaller doses are aromatic and stimulant.

Dose.—Eight minims to three fluidrachms, one-half to twelve cubic centimeters.

TINCTURA DIGITALIS.

TINCTURE OF DIGITALIS.

Tingerhuttinktur, G.

This tincture is sometimes considered inferior to the infusion, especially when a diuretic effect is desired. It produces, however, the specific action of the leaves, and is very convenient for administration in heart disease. Large doses, such as half an ounce, fifteen cubic centimeters,

have been used in delirium tremens, but for ordinary use in cardiac disease the

Dose is from eight to twenty drops, increased cautiously, its administration being guided by the pulse, the gastric irritability and the amount of renal secretion. It has been given subcutaneously, but only in cases of emergency, as in aconite poisoning.

TINCTURÆ HERBARUM RECENTIUM.

TINCTURES OF FRESH HERBS.

The activity of many plants is destroyed or diminished in the drying process, so that preparations from the fresh specimens are desirable if their full action is desired. The directions in the Pharmacopœia will give tinctures corresponding to a little more than half the strength of the French alcoolatures, varying with the proportion of juice in the plant. Their doses must be ascertained from actual trial, as they cannot be accurately calculated, either from the dose of the dry herb or its preparations, and the dose of the fresh in substance is not usually known. The varying amount of water in the juices of the fresh plants must vary considerably, so that the bulk of the tincture will not bear an invariable proportion to the substance of the herb. Some of the drugs which might be advantageously represented in this way are stated a few lines below. Of these aconite and belladonna might be very properly neglected, since their alkaloids being non-volatile, and, so far as known, not liable to decomposition, the ordinary preparations are efficient. Approximate doses are stated. Aconite root, fifteen to thirty drops per diem in divided doses;* belladonna leaves, seven to twenty drops in each dose;† cimicifuga, one-half to two fluidrachms, repeated until constitutional symptoms are produced; conium leaves, five to twenty drachms;‡ conium seeds, fifteen minims should produce some physiological effect; gelsemium root, three to eight drops;‖ serpentaria, half a drachm to two drachms.

TINCTURA FERRI ACETATIS.

Dose.—Fifteen drops to a teaspoonful, one to four cubic centimeters.

* Calculated from the French alcoolature.

† Calculated from the German tincture of the leaves and flowering tops, which contains a smaller proportion of alcohol.

‡ Calculated from the dose of an unofficinal weaker tincture given by Bartholow.

‖ Calculated from statements of Harley (Old Vegetable Neurotics).

TINCTURA FERRI CHLORIDI.

TINCTURE OF CHLORIDE OF IRON.

[TINCTURE OF FERRIC CHLORIDE.]

Tinctura Ferri Perchloridi, Br.; *Tinctura Ferri Sesquichloridi—Tincture of Perchloride of Iron*, E.; *Teinture de Perchlorure de Fer*, Fr.; *Eisenchloridtinktur*, G.

This is one of the most powerful and widely used of the preparations of iron. It is astringent and acid, and not always well borne by delicate stomachs. A small amount of hydrochloric ether is probably developed by the action of the free acid on the alcohol, which has been supposed to have a specially beneficial effect on some renal diseases. It is used for the general purposes of a ferruginous tonic in those who can bear it, and will, from its acid contents, if not too concentrated, assist digestion like the dilute hydrochloric acid. It has been used in erysipelas, both internally in large doses and externally, as well as in diphtheria. In both of these diseases it opposes itself to the anæmia so rapidly developed, while in the latter it is undoubtedly a topical antiseptic and astringent. It has been used as a spray in hemorrhage from the lungs, and also for the general purposes of an astringent, for which the simple solution of the same salt is usually employed. It may be administered in simple dilution, although syrup, or better, glycerin, is a more agreeable vehicle, and if the local effect in the fauces is desired, causes it to be delayed longer in contact with the diseased parts on the way down.

Dose.—Five minims to a fluidrachm, thirty-two centigrammes to four cubic centimeters three times a day in chronic cases, but in acute inflammation in the fauces it should be given much more frequently, once in an hour, or even half an hour or less.

TINCTURA GALLÆ.

TINCTURE OF NUTGALL.

Teinture de Noix de Galle, Fr.; *Galläpfeltinktur*, G.

A powerful astringent, in which, however, the tannic acid may be slowly converted into gallic.

Dose.—One-half to three fluidrachms, two to twelve cubic centimeters.

TINCTURA GELSEMII.

TINCTURE OF GELSEMIUM.

May be used to obtain the specific effects of the drug, although preparations from the fresh root are to be preferred.

Dose.—Thirty minims to two fluidrachms and a half, two to ten cubic centimeters.

TINCTURA GENTIANÆ COMPOSITA.

COMPOUND TINCTURE OF GENTIAN.

A bitter tonic. It is probably often taken rather for the effects of the alcohol than for the bitter. With ferric salts it forms a dark precipitate.

Dose.—A fluidrachm to half a fluidounce, four to sixteen cubic centimeters.

TINCTURA GUAIACI.

TINCTURE OF GUAIAC.

Tinctura Guajaci, P. G.; *Teinture de Résine de Gaïac*, Fr.; *Guajaktinktur*, G.

Has been used in chronic rheumatism. The guaiacum is precipitated on the addition of water, and therefore each dose should be diluted at the time of administration, or else a mucilage or syrup be selected as a vehicle.

Dose.—One to three fluidrachms, four to twelve cubic centimeters.

TINCTURA GUAIACI AMMONIATA.

AMMONIATED TINCTURE OF GUAIAC.

Has been used in chronic rheumatism and amenorrhœa. It has also, like other preparations of the resin, been supposed useful in the treatment of acute tonsillitis. A small quantity poured into water makes a cleanly and not disagreeable gargle.

Dose.—One or two fluidrachms, four to eight cubic centimeters.

TINCTURA HUMULI.

TINCTURE OF HOPS.

Tinctura Lupuli, Br.; *Teinture de Houblon*, Fr.; *Hopfentinktur*, G.

A somewhat uncertain preparation, containing the bitter of the hops, as well as a certain amount of the narcotic properties. It may be used as

a feeble nervine and hypnotic where more powerful drugs are undesirable. The fluid extract and oleo-resin of lupulin are, however, more trustworthy preparations.

Dose.—One to three fluidrachms, four to twelve cubic centimeters.

TINCTURA HYDRASTIS.

TINCTURE OF HYDRASTIS.

A bitter tonic.

Dose.—Two to five fluidrachms, eight to twenty cubic centimeters, three times a day. The dose must be regulated somewhat by the amount of alcohol.

TINCTURA HYOSCYAMI.

TINCTURE OF HYOSCYAMUS.

Teinture de Jusquiame, Fr. ; *Bilsenkraukttinktur*, G.

This preparation represents the active properties of hyoscyamus. It is used chiefly as a hypnotic or anodyne when opium does not agree. Its power in either of these directions, however, is not to be compared to that of opium. It might very properly be given with the tincture of the latter drug as a corrigent in very much the same way as belladonna.

Dose.—A fluidrachm, four cubic centimeters.

TINCTURA IGNATIÆ.

TINCTURE OF IGNATIA.

Contains the virtues of extract of ignatia, which depend upon strychnia and brucia. May be used, like tincture of nux vomica, as a bitter tonic. A more definite preparation should be selected to obtain the fully developed effects of strychnia.

Dose.—Fifteen minims to a fluidrachm, one to four cubic centimeters.

TINCTURA IODI.

TINCTURE OF IODINE.

[Tinctura Iodinii, *Pharm.*, 1870.]

This well-known tincture is employed chiefly as a cutaneous irritant, or as an injection into serous sacs or suppurating cavities. From these situations it may be absorbed from the skin slowly and slightly, but from a serous cavity very rapidly. It usually requires two or three applications

to produce decided irritant effects upon the skin, which becomes brown and dry, and finally peels off, leaving a delicate cuticle formed beneath it. In positions where the skin is thin and more sensitive it may raise a blister. The tincture may be used as a means for generating the vapor of iodine for inhalation. It may be given internally, but for this purpose the "Liquor iodi compositus" is much better. The "compound tincture" has been dropped from the Pharmacopœia. If a stronger and more rapid irritant effect is desired, an ethereal tincture may be prescribed much stronger than the officinal.

Dose.—Eight to thirty drops in a solution of iodide of potassium, or an ounce or two of syrup of orange peel.

TINCTURA IPECACUANHÆ ET OPII.

TINCTURE OF IPECACUANHA AND OPIUM.

[Liquid Dover's Powder.]

This tincture corresponds exactly by weight to Dover's powder (pulvis ipecacuanhæ et opii), ten parts containing one part each of opium and ipecac, and the dose must be regulated chiefly by the considerations which control the amount of opium. Too large a dose, however, may cause nausea from the ipecac.

Dose.—Four to fifteen minims, one-fourth to one cubic centimeter. The minims closely correspond to the same number of drops.

TINCTURA KINO.

TINCTURE OF KINO.

An astringent. The present edition of the Pharmacopœia orders this tincture to be made with the addition of glycerin, in order to obviate the tendency to gelatinize.

Dose.—One-half to two fluidrachms, two to eight cubic centimeters.

TINCTURA KRAMERIÆ.

TINCTURE OF KRAMERIA.

Tincture of Rhatany, E.; *Tinctura Ratanhæ*, P. G.; *Teinture de Ratanhia*, Fr.; *Ratanhatinktur*, G.

An astringent, containing more alcohol than the last preparation.

Dose.—One-half to two fluidrachms, two to eight cubic centimeters.

TINCTURA LAVANDULÆ COMPOSITA.

COMPOUND TINCTURE OF LAVENDER.

[SPIRITUS LAVANDULÆ COMPOSITUS, *Pharm.*, 1870.]

An aromatic stimulant, which may be used as a vehicle or corrigent, and alone in colic or flatulence. It may be mixed with sweetened water or with sugar.

Dose.—One-half to two fluidrachms, one to four cubic centimeters.

TINCTURA LOBELIÆ.

TINCTURE OF LOBELIA.

Dose.—As an antispasmodic in asthma, one-half to two fluidrachms, two to eight cubic centimeters, every two or three hours until relief, but not for too long a time; as an emetic, three fluidrachms, twelve cubic centimeters.

TINCTURA MATICO.

TINCTURE OF MATICO.

An aromatic stimulant, and mucous alterative.

Dose.—One-half to two and a half fluidounces, twenty to eighty cubic centimeters.

TINCTURA MOSCHI.

TINCTURE OF MUSK.

This tincture retains the smell, and probably the therapeutic activity, of musk. It is used chiefly as a perfume, but might be employed in the same class of cases as the musk itself. Since alcohol is usually indicated in these cases, its presence in the tincture is of no disadvantage.

Dose.—Forty to one hundred drops, alone or with other tinctures, or in a mixture.

TINCTURA MYRRHÆ.

TINCTURE OF MYRRH.

May be used as an aromatic local stimulant to make a wash for unhealthy gums, or to disinfect fetid and decomposing secretions and accretions in the mouth. With an astringent it makes a useful lotion for piles or unhealthy ulcerations.

TINCTURA NUCIS VOMICÆ.

TINCTURE OF NUX VOMICA.

A bitter tonic.

Dose.—Eight to thirty drops.

TINCTURA OPII.

TINCTURE OF OPIUM.

Tinctura Opii Simplex, P. G.; *Tinctura Thebaica, Tinctura Meconii—Laudanum*, E.; *Teinture d'Opium, Teinture Thébaïque*, Fr.; *Einfache Opiumtinktur*, G.

This most important of all the tinctures is nearly one-half stronger than in the last edition, if the latter were made from the *lowest* grade of opium permissible in that edition, and this be made from an *average* grade between the limits assigned in the present edition. In most cases it may well be replaced by the "tinctura opii deodorata." The dose must, of course, vary widely, both as to size and frequency of administration, and that given below is intended as a single dose for a healthy adult.

Dose.—For an adult, six minims, thirty-seven one-hundredths of a cubic centimeter, or about twelve drops, is a rather small dose. By weight one part of opium is contained in ten of the tincture.

TINCTURA OPII CAMPHORATA.

CAMPHORATED TINCTURE OF OPIUM.

Tinctura Camphoræ Composita, Br.; *Tinctura Opii Benzoica*, P. G.; *Elixir Paregoricum—Paregoric Elixir*, E.; *Elixir Paregorique*, Fr.; *Benzoësaurehaltige Opiumtinktur*, G.

This is one of the weakest preparations of opium, often used for children. It adds to the virtues of opium those of the stimulating volatile oils. It may be employed to relieve abdominal pain of a colicky and flatulent character, or to check an irritable cough. The quantity necessary to equal the dose, stated in the previous article, is a little less than three drachms, or eleven cubic centimeters, but since it is seldom used to produce the full effects of opium the

Dose is one or two fluidrachms, four to eight cubic centimeters.

TINCTURA OPII DEODORATA.

DEODORIZED TINCTURE OF OPIUM.

This preparation is wanting in narcotine, and also in the peculiar and disagreeable smell of opium. It has less of the nauseating and disagreeable after-effects of the drug than the simple tincture, and is often preferred to it for internal administration.

The **Doses** are the same as those of the simple tincture when reckoned by weight; but it should be remembered that owing to its containing a lesser proportion of alcohol, drops are more or less nearly equivalent to minims instead of being, as with the other tincture, about half that measure.

TINCTURA PHYSOSTIGMATIS.

TINCTURE OF PHYSOSTIGMA.

The uses of this preparation are simply those of physostigma or its alkaloid.

Dose.—Ten grains, sixty-five centigrammes, or about twelve minims, increased until the specific effects of the drug are obtained.

TINCTURA PYRETHRI.

TINCTURE OF PYRETHRUM.

Tincture of Pellitory, E.; *Bertramwurzeltinktur*, G.

Is used as a local irritant in the mouth, or to diminish the pain in carious teeth. For these uses it need not be diluted more than is necessary to get rid of the irritating effect of the alcohol.

Dose.—A few drops held in the mouth.

TINCTURA QUASSIÆ.

TINCTURE OF QUASSIA.

This tincture is somewhat stronger than in the last edition. It is an intense bitter.

Dose.—One-half to two fluidrachms, two to eight cubic centimeters.

TINCTURA RHEI.

TINCTURE OF RHUBARB.

The strength of this preparation is slightly increased in the present edition, but not enough to make it a very powerful cathartic. The quan-

tity of tincture necessary to produce full cathartic effects will contain, especially if the rhubarb employed be not of the very best quality, an amount of alcohol not to be left out of sight in estimating its value. Hence it is used rather as an adjuvant to other cathartics, or as a laxative and tonic in gastric and intestinal torpor.

Dose.—As a cathartic, must, in most cases, be not less than half a fluidounce, fifteen cubic centimeters. As a laxative or tonic, one drachm, four cubic centimeters, more or less.

TINCTURA RHEI AROMATICA.

AROMATIC TINCTURE OF RHUBARB.

The strongest of this set of rhubarb tinctures.

The doses may be somewhat less than those given under Tinctura Rhei, say from two drachms to half a fluid ounce, or more as a cathartic.

TINCTURA RHEI DULCIS.

SWEET TINCTURE OF RHUBARB.

Weaker than either of the other two tinctures. Intended chiefly for children. A child of ten or twelve years old might take the doses of this preparation corresponding to those mentioned under Tinctura Rhei.

TINCTURA SANGUINARIÆ.

TINCTURE OF SANGUINARIA.

Dose.—As an emetic, one to three fluidrachms, four to twelve cubic centimeters; as an expectorant, eight to sixty minims, one-half to four cubic centimeters.

TINCTURA SAPONIS VIRIDIS.

TINCTURE OF GREEN SOAP.

A somewhat more elegant form of soft soap, intended for external use in cutaneous diseases where an alkaline application is desired, as in eczema, or in seborrhœa of the scalp, when its solution in three parts of alcohol may be used for shampooing.

TINCTURA SCILLÆ.

TINCTURE OF SQUILL.

Frequently used as a diuretic, alone or combined with digitalis, juniper, or the salines.

Dose.—Eight to twenty-four minims, one-half to one and a half cubic centimeter.

TINCTURA SERPENTARIÆ.

TINCTURE OF SERPENTARIA.

Schlangenwurzeltinktur, G.

A stimulant, used in typhoidal conditions.

Dose.—One to three fluidrachms, four to twelve cubic centimeters.

TINCTURA STRAMONII.

TINCTURE OF STRAMONIUM.

May be used to obtain the characteristic effects of stramonium or atropine.

Dose.—From fifteen minims, one cubic centimeter, upward, until slight dilatation of the pupils or some dryness of the throat appears.

TINCTURA SUMBUL.

TINCTURE OF SUMBUL.

Dose.—One to four fluidrachms, four to sixteen cubic centimeters.

TINCTURA TOLUTANA.

TINCTURE OF TOLU.

Used as a flavoring, chiefly in cough syrups.

TINCTURA VALERIANÆ.

TINCTURE OF VALERIAN.

It is not advisable to use this preparation in hysterical cases on account of the alcohol. It may be used in typhoid or delirium tremens if it be thought that valerian has much value in these conditions.

Dose.—One to two fluidrachms.

TINCTURA VALERIANÆ AMMONIATA.

AMMONIATED TINCTURE OF VALERIAN.

May be used for all the purposes in which valeria is desirable.

Dose may be the same as that of the last preparation.

TINCTURA VANILLÆ.

TINCTURE OF VANILLA.

A flavoring.

The **Dose** is a few drops, sufficient to impart the desired amount of taste.

TINCTURA VERATRI VIRIDIS.

TINCTURE OF VERATRUM VIRIDE.

Tincture of American Hellebore, Tincture of Green Hellebore, E.

May be used to produce the characteristic effects of veratrum viride, especially upon the heart, in febrile diseases.

Dose may be six or eight drops every three hours until nausea occurs or the pulse falls. It is better given, however, in smaller doses, say two or three drops every hour, the same indications being watched for.

TINCTURA ZINGIBERIS.

TINCTURE OF GINGER.

Ingwertinktur, G.

A local irritant. Internally a gastric stimulant and carminative.

Dose.—Fifteen to seventy-five minims, one to five cubic centimeters.

TRAGACANTHA.

TRAGACANTH.

Gomme Adragante, Fr.

This gum is employed in pharmacy to form emulsions for the suspension of insoluble powders, and is better than acacia for emulsions of cod-liver oil. It is also used in troches. On the other hand, since it does not fully dissolve in water, it does not form, like acacia, an agreeable mucilage for demulcent purposes.

TRITICUM.

TRITICUM.

[Couch-grass.]

Rhizoma Graminis, P. G.; *Radix Graminis—Quickgrass, Quickens, Quitch,* E.; *Petit Chiendent,* Fr.; *Queckenwurzel, Graswurzel,* G.

The root-stocks of this troublesome plant contain sugar, which appears to be its most active constituent. It is largely used as a demulcent and

diluent, more particularly in cystitis and irritation of the urinary passages. So far as analysis has yet gone, it must owe its diuretic effect to its sugar. An infusion or decoction is the best form for its administration, and it is doubtful if the officinal fluid extract can usefully replace them. Either of these preparations may be made by the general rule, or a little weaker, and freely used.

TRITURATIONES.

TRITURATIONS.

This class of preparations is a new introduction to the Pharmacopœia. The process of trituration presents the drug to the digestive organs in a state of minute subdivision, favorable to rapid and complete solubility, and hence, raises to its maximum the efficiency of those drugs which are preferably administered in the solid form. Resins, glucosides, and alkaloids, as well as many crude drugs which are not given in bulky doses, may be prepared in this way. The proportion of the drug is one to ten.

TRITURATIO ELATERINI.

TRITURATION OF ELATERIN.

Dose.—One-half to three-quarters of a grain, thirty to forty-five milligrammes (.030 to .045).

TROCHISCI ACIDI TANNICI.

TROCHES OF TANNIC ACID.

Pastilles de Tannin, Fr.; *Tanninpastillen*, G.

A convenient form for administering tannin in small doses, either for its effect on the mouth and fauces or on the intestinal canal.

Dose.—They may be used almost ad libitum if allowed to dissolve slowly in the mouth.

TROCHISCI AMMONII CHLORIDI.

TROCHES OF CHLORIDE OF AMMONIUM.

This is a convenient form for giving chloride of ammonium in chronic or subacute bronchitis. The taste of the salt is so disagreeable that the patient will be inclined to swallow the troches as quickly as possible.

Dose.—One troche may be used every hour or two.

TROCHISCI CATECHU.

TROCHES OF CATECHU.

Tabellæ cum Catechu, F. P.; *Pastilles de Cachou*, Fr.; *Katechupastillen*, G.

Should be used for the same purposes as the tannic acid troches, but are not quite so strong.

TROCHISCI CRETÆ.

TROCHES OF CHALK.

Pastilles de Craie Preparée, Fr.; *Kreidepastillen*, G.

May be used for the general astringent and antacid properties of chalk almost ad libitum.

TROCHISCI CUBEBÆ.

TROCHES OF CUBEB.

Kubebenpastillen, G.

These may be used in chronic irritated conditions of the fauces, pharynx, and upper air-passages. Each troche contains half a grain, three centigrammes (.03) of oleo-resin of cubeb.

TROCHISCI FERRI.

TROCHES OF IRON.

Tablettes Chalybées, Fr.

One or two troches may be used three times a day, after meals.

TROCHISCI GLYCYRRHIZÆ ET OPII.

TROCHES OF GLYCYRRHIZA AND OPIUM.

Pastilles d'Opium, Pastilles de Réglisse Opiacées, Fr.

Each troche contains a twentieth of a grain, three milligrammes, of extract of opium. By an adult, one of these might be used every hour or two for an irritable cough. Children, however, should not be allowed to use them freely, as the amount of opium is by no means insignificant.

TROCHISCI IPECACUANHÆ.

TROCHES OF IPECACUANHA.

Brechwurzelpastillen, G.

These troches can be of value only for the expectorant action of ipecac. If taken very frequently they might cause some nausea.

TROCHISCI KRAMERIÆ.

TROCHES OF KRAMERIA.

These troches are practically equivalent to those of catechu or tannic acid.

TROCHISCI MAGNESIÆ.

TROCHES OF MAGNESIA.

Pastilles Absorbantes, Fr.

Slightly antacid. Might be used freely.

TROCHISCI MENTHÆ PIPERITÆ.

TROCHES OF PEPPERMINT.

Pastilles de Menthe Anglaises, Fr.

These officinal troches, or those of the confectioner, may be used to relieve colic and flatulence. Like the aromatics, they excite the flow of saliva, and may be used to relieve dryness of the mouth.

TROCHISCI MORPHINÆ ET IPECACUANHÆ.

TROCHES OF MORPHINE AND IPECAC.

Each troche contains one-fortieth of a grain, one and six-tenths of a milligramme (.0016), of morphia, and one-twelfth of a grain, five milligrammes (.005), of ipecac. They may be used in bronchial cough, but the usual caution should be observed in regard to children.

Dose.—One troche once in an hour or two.

TROCHISCI POTASSII CHLORATIS.

TROCHES OF CHLORATE OF POTASSIUM.

These troches might be used to obtain the local cleansing effect of chlorate of potassium in affections of the mouth and fauces, but the solu-

bility of the chlorate is so small that a solution of the full strength is none too active for local use. They should be dissolved in the mouth. The constitutional effects of the chlorate (hæmaturia and nephritis) might be produced by them, if given in sufficient quantity, as well as by other preparations. Each troche contains five grains, thirty-two centigrammes (.32).

TROCHISCI SODII BICARBONATIS.

TROCHES OF BICARBONATE OF SODIUM.

Pastilles de Vichy, Pastilles Digestives, Fr.

Antacid and carminative. Each troche contains three grains of the bicarbonate. They may be used almost ad libitum.

TROCHISCI SODII SANTONINATIS.

TROCHES OF SANTONINATE OF SODIUM.

Worm lozenges. Each one contains a grain of santoninate of sodium.

Dose.—One or two may be given every four hours until eight or ten are taken (by an adult), or the characteristic yellow vision appears. Children should, of course, take less in proportion, and a cathartic should afterward be administered.

TROCHISCI ZINGIBERIS.

TROCHES OF GINGER.

Carminative and stimulant to the digestion.

Dose.—Two or three may be used, as needed.

ULMUS.

ELM.

Slippery Elm Bark, E.; *Ulmenrinde, Rüsterrinde*, G.

Slippery elm bark contains a considerable amount of mucilage, and is used as a demulcent internally. The taste is agreeable, and it produces no unpleasant effects. It is used externally as a poultice. Elm tents for the dilatation of fistulæ or of the os uteri are made from the bark torn up, so as to make a spongy absorbent mass.

UNGUENTUM.

OINTMENT.

Unguentum Simplex, Br.; *Unguentum Adipis*, U. S., 1860; *Simple Ointment*, E.; *Pommade Simple*, Fr.; *Wachsalbe*, G.

Ointment is a little softer than "cerate," owing to a larger proportion of lard. It is used as a basis for other ointments, as a protective for excoriated surfaces, or to lubricate the finger or surgical instruments.

UNGUENTUM ACIDI CARBOLICI.

OINTMENT OF CARBOLIC ACID.

Pommade d'Acide Phénique, Fr.; *Phenolsalbe*, G.

This ointment is considerably stronger (ten per cent.) than is desirable for most purposes of local disinfection, and may be diluted down to two or five per cent. For some cutaneous diseases the full strength may be employed.

UNGUENTUM ACIDI GALLICI.

OINTMENT OF GALLIC ACID.

Very slightly astringent.

UNGUENTUM ACIDI TANNICI.

OINTMENT OF TANNIC ACID.

More powerfully astringent.

UNGUENTUM AQUÆ ROSÆ.

OINTMENT OF ROSE WATER.

Unguentum Leniens, P. G.; *Cold Cream*, E.; *Cérat Cosmétique, Crème Froide*, Fr.; G.

A more elegant protective and emollient than simple ointment. An addition of glycerine and benzoic acid may be prescribed, which preserves it and renders it more efficient.

UNGUENTUM BELLADONNÆ.

BELLADONNA OINTMENT.

Tollkirschensalbe, G.

Has been used to relieve local pains. If applied over a large surface of the skin, enough might possibly be absorbed to produce some consti-

tutional effects. These, however, would be much greater if the skin were abraded or the ointment applied to a mucous membrane, as the vagina, anus, etc.

UNGUENTUM CHRYSAROBINI.

CHRYSAROBIN OINTMENT.

This ointment is stronger than should be applied to most skins, and it should generally be diluted from three to five times. It is used in the treatment of skin diseases, especially psoriasis. (See Chrysarobinum.)

UNGUENTUM DIACHYLON.

DIACHYLON OINTMENT.

This well-known ointment, recently introduced into the Pharmacopœia, is used in the treatment of cutaneous diseases, especially eczema. It is spread upon pieces of cloth and applied closely to the skin by means of bandages.

UNGUENTUM GALLÆ.

NUTGALL OINTMENT.

Galläpfelsalbe, G.

An astringent, not quite so strong as the ointment of tannic acid. It may be applied to fissures or piles, but preparations with water or glycerine are better for this purpose.

UNGUENTUM HYDRARGYRI.

MERCURIAL OINTMENT.

[Blue Ointment.]

Pommade Mercurielle, Pommade Napolitaine, Fr.; *Graue Quecksilbersalbe*, G.

This ointment is used chiefly to produce the constitutional effects of mercury, with less risk of disordering the digestion than when mercurials are given by the mouth. It is rubbed into those regions where the epidermis is thin, as the inside of the thighs, and of the arms, the sides below the axillæ, and the chest. The quantity may be a drachm or two. It may also be applied upon a cloth or bandage. The skin should be cleaned at intervals, but not after each application. The globules of mercury can be found by the microscope below the more superficial cells of the epidermis, and partly down the ducts of the sweat glands and sebaceous follicles. The fact that a portion of the mercury becomes changed to an oxide or per-

haps an oleate, undoubtedly renders the absorption more rapid. Mercurial ointment may be applied to local swellings, especially, though not exclusively, those of a syphilitic character. An application of this ointment, thickened, if necessary, by starch, and spread upon linen, is said to prevent the pitting of small-pox. Mercurial ointment is often used upon the head to destroy lice, but should be employed with caution on account of the risk of constitutional effects.

UNGUENTUM HYDRARGYRI AMMONIATI.

OINTMENT OF AMMONIATED MERCURY.

Unguentum Hydrargyri Præcipitati Albi, P. G.; *Pommade de Précipité Blanc*, Fr.; *Weisse Quecksilbersalbe*, G.

A somewhat irritating and stimulant application in various diseases of the skin. In some of these its beneficial action is due to its destroying parasitic fungi, as in tinea tonsurans, tinea circinata, and sycosis. Its stimulant effect may be manifested in chronic eczema, or indolent inflammation of the edges of the eyelids. The caution before referred to should be observed in regard to this ointment.

UNGUENTUM HYDRARGYRI NITRATIS.

OINTMENT OF NITRATE OF MERCURY.

[Citrine Ointment.]

This mercurial ointment is somewhat more irritating than the last, and usually needs dilution. It is used in the same general class of cases. It may produce constitutional effects.

UNGUENTUM HYDRARGYRI OXIDI FLAVI.

OINTMENT OF YELLOW OXIDE OF MERCURY.

May be used as a local irritant and stimulant application in old inflammations. It usually needs dilution, and may produce constitutional effects.

UNGUENTUM HYDRARGYRI OXIDI RUBRI.

OINTMENT OF RED OXIDE OF MERCURY.

Baume Ophthalmique Rouge, Fr.; *Rothe Quecksilbersalbe*, G.

The action and uses of this preparation are the same as those of the last.

UNGUENTUM IODI.

IODINE OINTMENT.

This ointment is used as an application to the swellings caused by chronic inflammation or glandular enlargement. Its action is probably that of a counter-irritant rather than dependent upon any specific effect of the iodine. It is, however, possible that a small amount of iodine finds its way through the skin.

UNGUENTUM IODOFORMI.

IODOFORM OINTMENT.

This application is antiseptic and locally anæsthetic. It may be used for dressing indolent and sloughing ulcers. For many such purposes, however, the blowing on of the powdered iodoform is preferable. The use of large amounts might give rise to constitutional symptoms.

UNGUENTUM MEZEREI.

MEZEREUM OINTMENT.

Pommade Épispastique au Garon, Fr.; *Seidelbastsalbe*, G.

An irritant, which may be used to keep up the discharge from blisters or issues.

UNGUENTUM PICIS LIQUIDÆ.

TAR OINTMENT.

Pommade de Goudron, Fr.; *Theersalbe*, G.

Tar ointment is used in the treatment of chronic cutaneous diseases, especially those which require stimulating and somewhat antiseptic applications, as old eczema and psoriasis. Its action as a parasiticide is not so certain as that of some other applications, *e.g.*, kerosene.

UNGUENTUM PLUMBI CARBONATIS.

OINTMENT OF CARBONATE OF LEAD.

Unguentum Cerussæ s. Ung. Album Simplex, P. G.; *Pommade de Carbonate de Plomb, Onguent Blanc de Rhagis*, Fr.; *Bleiweisssalbe*, G.

May be used as a dressing for burns, where it acts chiefly as a protective. Continued over a considerable surface for a long time, it might cause chronic lead-poisoning, but with ordinary precautions the danger is not great. Common white paint might be used in an emergency.

UNGUENTUM PLUMBI IODIDI.

OINTMENT OF IODIDE OF LEAD.

Ointment of iodide of lead is used with a view to promoting the absorption of tumors, especially those of a glandular character.

UNGUENTUM POTASSII IODIDI.

OINTMENT OF IODIDE OF POTASSIUM.

May be used in somewhat the same class of cases as the ointment of iodine; but as it is wanting in the irritant action its value is by so much the less. The absorbent and alterative properties of iodide of potassium are more efficiently developed in internal than external administration.

UNGUENTUM STRAMONII.

STRAMONIUM OINTMENT.

Singularly enough the last edition of the Pharmacopœia does not specify whether the extract of stramonium used in the ointment is that of the leaves or the seeds. If that of leaves were generally used, as being the better known and older, the ointment of the present edition ought to be stronger. Its action and uses are those of belladonna ointment.

UNGUENTUM SULPHURIS.

SULPHUR OINTMENT.

This ointment is used in scabies. It is possible that the amount of sulphurous acid present in this ointment may have a parasiticide effect. Its action, however, is largely mechanical in breaking up the burrows of the insect. It is somewhat irritant.

UNGUENTUM SULPHURIS ALKALINUM.

ALKALINE SULPHUR OINTMENT.

In this ointment the alkaline sulphide acts as a poison to the itch insect. The mechanical action is about the same as that of the last preparation. (See Sulphur.)

UNGUENTUM VERATRINÆ.

VERATRINE OINTMENT.

[Unguentum Veratriæ, *Pharm.*, 1870.]

An irritant application having subsequently a benumbing effect, used locally in neuralgia. If applied over too large a surface, symptoms of the

absorption of a small amount of the alkaloid may be developed, and as this alkaloid is extremely depressing to the heart, and liable to cause nausea, some care should be exercised in the use of this preparation.

UNGUENTUM ZINCI OXIDI.

OINTMENT OF OXIDE OF ZINC.

Unguentum de Nihilo Albo, Fr.; *Zinksalbe*, G.

This is a well-known protective and astringent. It is applied to burns, fissures, ulcers, and various forms of skin disease, as eczema in its earlier stage. Its place in treatment is at a time previous to that of some of the stimulating ointments described. If fetor of discharges is present, a little carbolic acid may be added to it.

USTILAGO.

USTILAGO.

This fungus probably contains, like ergot, the alkaloid propylamine, besides an oil, pectin, gluten, etc. It produces effects similar to those of ergot, and is said by some practitioners to be more prompt and efficacious.

Dose.—One-fourth to one drachm, one to four grammes.

UVA URSI.

UVA URSI.

[Bearberry.]

Feuilles de Busserole, Fr.; *Bärentraubenblätter*, G.

Uva ursi contains a considerable proportion of a tannic acid resembling that of the oak. The neutral principle, ursin, is diuretic. It contains also the bitter ericolin (found in other members of the Heath family) and ursone. It is used, either in the form of a decoction or of the fluid extract, diluted, as an astringent and tonic, chiefly in inflammatory diseases of the urinary organs. Its active principles, or some of them, pass into the urine and render it dark. The bitter would give it some effect as a stomachic tonic.

Dose.—Fifteen grains to a drachm, one to four grammes.

VALERIANA.

VALERIAN.

Baldrianwurzel, G.

The activity of valerian resides in its volatile oil, which contains valerianic acid. The officinal valerianic acid, however, is not derived from the

plant, but is artificially prepared. The herb and the oil, in large doses produce slightly narcotic effects, including heaviness, and drowsiness, and diminished frequency of the pulse. Smaller doses are usually considered stimulant or "antispasmodic."

It is used to quiet nervous excitement, as in hysteria or nervous headache, or to promote sleep in cases of hypochondriasis or nervous restlessness. It may be given in powder or infusion, although at present the preparations, such as the fluid extract and the valerianates, are more commonly used.

Dose.—In substance or infusion, thirty to ninety grains, two to six grammes.

VANILLA.

VANILLA.

The chief use of vanilla is as a flavoring. The infusion, however, has been recommended as an aromatic stimulant, and, when made considerably weaker than by the general rule, may be given in tablespoonful doses. A few drops of the tincture may be given in sweetened water.

VERATRINA.

VERATRINE.

[VERATRIA, *Pharm.*, 1870.]

This alkaloid, found in veratrum sabadilla, is closely akin to, but probably not identical with, the veratralbia of the European veratrum album, and the veratroidia of the indigenous and officinal veratrum viride. It possesses an acrid, burning taste, and produces, when introduced into the nostrils, a severe attack of sneezing. Applied to the skin or mucous membranes, it produces prickling, burning, and numbness. Severe vomiting and usually diarrhœa are consequences of its introduction into the intestinal canal in considerable doses. Small doses reduce the force and frequency of the heart's action, but with larger ones the pulse becomes frequent, feeble, and irregular, the temperature is reduced, and the general condition is one of collapse. Muscular trembling in men and convulsions in animals, and final paralysis, show that it is a muscular poison.

Veratria has been used in febrile diseases as a cardiac sedative. It undoubtedly reduces the pulse and temperature; but the results of the use of this powerful agent in pneumonia for instance, do not show that it either shortens the disease or diminishes the mortality, beyond the expectant and sustaining treatment now more generally employed. It is

certainly unfitted for any but robust patients and the sthenic forms of disease.

Veratria has been used in rheumatism. At present it is almost solely employed externally in the form of the officinal ointments in the local treatment of neuralgia.

Dose.—One-twelfth to one-sixth of a grain, five milligrammes to one centigramme (.005 to .01), every three hours, until the effects above described as resulting from the small dose are observed, or until there are slight indications of nausea. It may be dissolved in acidulated water or given in the form of a pill.

VERATRUM VIRIDE.

VERATRUM VIRIDE.

[American Hellebore.]

Green Hellebore Root, Indian Poke, E. ; *Grüner Germer*, G.

Veratrum viride contains the alkaloids jervia, which is found also in the veratrum album, and veratroidia, which is probably peculiar to it, but closely related to veratria. Both of these alkaloids exercise a depressing effect upon the heart, the jervia directly, and the veratroidia through the pneumogastric nerve. Large doses of either of them are followed by convulsions and asphyxia, the latter condition being the cause of death in the fatal cases. Veratroidia is irritant to the intestinal canal, causing vomiting and purging.

Veratrum viride is administered in order to obtain its sedative effects upon the heart without vomiting or purging. The best way to attain this end is to give small doses frequently repeated, and guarded, if necessary, by a little opium. The truly therapeutic value of veratrum viride in febrile disease, like that of veratria and other cardiac sedatives, may be doubted ; but, if a sedative action be desired, the drug under consideration is one of the best means of attaining it, since when even excessive doses have been given with the result of producing a condition of collapse, the patient usually recovers with rapidity from a condition of apparent danger. Dangerous symptoms, however, need not arise unless by mistake or accident. Stimulants, and especially morphia, are to be used if an overdose has been given. This drug has also been used to diminish spasmodic action in croup.

Whatever be the name of the disease, veratrum viride is to be used only in strong persons, and not in asthenic conditions. It is not used in substance, but the fluid extract or the tincture is employed instead.

VIBURNUM.

VIBURNUM.

[Black Haw.]

The viburnum prunifolium has been successful, as stated by several practitioners, in preventing threatened abortion. It is also useful in dysmenorrhœa. No definite theory of its modus operandi has been advanced. It may be given with aromatics, nervous sedatives, cannabis indica, or morphia. It is to be regretted that viburnum opulus, which is highly valued by many practitioners as a remedy in uterine as well as in other abdominal pains, is not made officinal.

The bark itself is not used, but its fluid extract may be given in the

Dose of one-fourth teaspoonful to a teaspoonful, one to four cubic centimeters.

VINUM ALBUM.

WHITE WINE.

The alcoholic strength of the wine directed by the Pharmacopœia corresponds to that of the weaker and medium sherries, and is the most that can be attained directly by fermentation, since an accumulation of alcohol beyond this point checks the process by which it has been itself produced. Wines containing more than this amount have been fortified—that is, had alcohol or brandy added to them.

Within or near the officinal limits are Marsala, Madeira, the stronger wines of the Rhine, Hungary, and the Mediterranean countries. The wines made in California are of greater alcoholic strength than the European wines for which they are named. Many of them, such as California hock, sherry, and muscatel, are of about officinal strength. Most Rhine wines, Tokay, and champagne are below the standard. The adulteration and even fraudulent manufacture of wines is undoubtedly widely practised. The California wines, from their cheapness, are less liable to be fictitious than those of alleged foreign growth.

The action of wine is essentially that of alcohol, modified by the ethers and oils contained in it when duly aged. Wine is at first more stimulating than alcohol alone, but after a time its effects correspond closely enough to those of alcohol in the same degree of dilution. Wine is used in medicine for the general purposes of alcohol, being preferred, however, to the stronger forms in dyspeptic disorders, as a cardiac stimulant, and in those cases of acute and typhoidal diseases where large doses are not required. For strictly dietetic purposes the wines weaker than the officinal strength are largely used, and are in most cases decidedly preferable.

VINUM ALBUM FORTIUS.

STRONGER WHITE WINE.

The directions given in the Pharmacopœia are simply a formal recognition of the fact that the strong sherries are artificial products. This wine is used in pharmacy to prepare the medicated wines, and in medicine for the same purposes as the former preparation. The medicated wines are simply tinctures with very dilute alcohol, and cannot be considered as by any means indispensable preparations.

VINUM ALOES.

WINE OF ALOES.

Vin Aloëtique, Fr.

This is a bitter tonic and cathartic, and is used in affections connected with a sluggish and debilitated state of the pelvic viscera.

Dose.—As a stomachic or laxative, one or two fluidrachms, four to eight cubic centimeters ; as a purgative, half an ounce to an ounce, fifteen to thirty cubic centimeters.

VINUM ANTIMONII.

WINE OF ANTIMONY.

Vinum Stibiatum s. Emeticum P. G. ; *Vin Stibié*, Fr. ; *Brechwein*, G.

Of this somewhat dilute preparation, one gramme, or fifteen grains, which will not differ much from a cubic centimeter, or fifteen minims, contains four milligrammes, or the sixteenth of a grain. Hence the wine is generally used when the smaller doses of tartar emetic are to be given for expectorant or diaphoretic purposes.

Dose.—As a small dose for adults, eight to thirty drops, or from one-half to two cubic centimeters may be given ; as an emetic for children, thirty drops to a fluidrachm, two to four cubic centimeters, repeated at short intervals until it causes vomiting.

VINUM AROMATICUM.

AROMATIC WINE.

A stimulant and bitter which may be used as a tonic in gastric debility and dyspepsia. The German preparation by this name, which, however, is not an exact equivalent, is used as a dressing for dirty ulcers.

VINUM COLCHICI RADICIS.

WINE OF COLCHICUM ROOT.

Zeitlosenknollenwein, G.

When made of the best material, this is one of the most active preparations of colchicum; but as the dried corms are not always good or uniform in activity its dose cannot be stated so accurately as can be done with the preparations of the seeds, but a minimum must be given to begin with, and increased until the desired physiological or therapeutic effects are produced.

Dose.—Eight minims, or half a cubic centimeter, repeated every three hours, with the addition of a drop to each dose, until the pulse is reduced in frequency, or slight nausea or diarrhœa is produced.

VINUM COLCHICI SEMINIS.

WINE OF COLCHICUM SEED.

This wine is of the same strength by weight as the tincture of colchicum seeds, and the **Dose** is fifteen to thirty minims, one to two cubic centimeters. In reckoning by drops, it should be recollected that the drops of the tincture, being more strongly alcoholic, are somewhat smaller than those of the wine.

VINUM ERGOTÆ.

WINE OF ERGOT.

Mutterkornwein, G.

This preparation possesses no known advantages over the more convenient fluid extract.

Dose.—Two to four fluidrachms, eight to sixteen cubic centimeters.

VINUM FERRI AMARUM.

BITTER WINE OF IRON.

This preparation may take the place of the various elixirs of "iron and calisaya."

Dose.—One to four fluidrachms, four to sixteen cubic centimeters.

VINUM FERRI CITRATIS.

WINE OF CITRATE OF IRON.

A sort of iron elixir which merely adds one to the number of ferruginous preparations that conceal more or less completely the taste of the drug.

Dose.—One or two fluidrachms, four to eight cubic centimeters.

VINUM IPECACUANHÆ.

WINE OF IPECAC.

Brechwurzelwein, G.

Since this preparation is a mere dilution of the fluid extract, it is used chiefly to produce the effects of the smaller doses, and may be given as an expectorant or diaphoretic in catarrh or bronchitis, or to check vomiting and diarrhœa, or relieve atonic dyspepsia by its stimulant action.

Dose.—As an expectorant, five to ten drops; to relieve vomiting, half a drop, repeated every fifteen or thirty minutes; as an emetic (for which purpose it is not the best preparation), a fluidrachm to a fluidounce.

VINUM OPII.

WINE OF OPIUM.

Tinctura Opii Crocata, P. G.; *Laudanum Liquidum Sydenhami—Sydenham's Laudanum*, E.; *Vin d'Opium Composé*, Fr.; *Safranhaltige Opiumtinktur*, G.

The wine of opium, or Sydenham's laudanum, corresponds in opium strength to the ordinary tincture, but is less disagreeable to the taste, and less liable to cause nausea. The dose corresponds to that of laudanum, and is subject to the same limitations, corrections, and cautions.

Dose.—Six minims, thirty-seven one-hundredths of a cubic centimeter. By drops the number should be somewhat less than of the tincture, as the lesser alcoholic strength renders them a little larger.

VINUM RHEI.

WINE OF RHUBARB.

This aromatic and bitter wine has about the same strength as the sweet tincture of rhubarb, and a little more than the simple tincture. It may be used for the same purposes as these for a laxative and digestive stimu-

lant, and it may, under some circumstances, be preferable on account of its lesser alcoholic strength.

Dose.—From one to four fluidrachms, four to sixteen cubic centimeters.

VINUM RUBRUM.

RED WINE.

The wine known by this name in some former editions of the Pharmacopœia was port, or supposed to be such, but the alcoholic strength prescribed in the present edition falls below the limit of most samples of that wine. The commercial wine may, if necessary, be reduced to the standard by water; but this should not be done except at the time of use; and as red wine is not employed in any preparation, it would be better to make any necessary allowance for greater alcoholic strength in the doses administered than to bring it down to any fixed standard. Bordeaux, claret, Burgundy, red hermitage, and probably many of the Hungarian and Greek red wines come within officinal limits. There are few red wines made in this country. Currant wine may be of about the required strength. Port is undoubtedly a factitious wine, that which is genuine having a proportion of brandy added at a certain stage of the fermentation, increasing its alcoholic strength while preserving a portion of the sugar. It is more astringent than vinum album or sherry, owing this property in the genuine to tannic acid from the grape skins and stalks, and in the imitation largely to logwood. Thus in the diarrhœa of typhoid, for instance, it may be substituted for sherry, instead of administering with the sherry, as a drug, some other astringent, like catechu or logwood.

VIOLA TRICOLOR.

VIOLA TRICOLOR.

[Pansy.]

Herba Violæ Tricoloris, P. G.; *Heart's-ease, Herba Jaceæ*, E.; *Pensée*, Fr.; *Freisamkraut, Stiefmütterchen*, G.

This herb is slightly mucilaginous and bitter. It also contains a little violine, a substance analogous to emetine, and having an emeto-cathartic action. Its continued use imparts a disagreeable odor to the urine. The herb is used in impetigo and eczema. It is given internally, and an ointment made from an extract or a poultice from the herb itself applied externally.

Dose.—One to five grammes, fifteen to seventy-five grains, in decoction.

VITELLUS.

YOLK OF EGG.

The yolk of egg is used to form the glycerite which is chiefly employed as a local application, but would, of course, be available as an aliment. The yolk is the most fatty portion of the egg, and is used as an article of diet in a great variety of forms of cookery. It may be employed as well as the white in making emulsions of cod-liver oil.

For persons of weak digestion the yolk of egg boiled very hard, so that it can be broken up to a powder, is often a more easily digested food than would be supposed from the popular estimate of hard-boiled eggs. The white of egg mixed raw with water and a little pepper is often borne better by the stomach than many more elaborate preparations.

XANTHOXYLUM.

XANTHOXYLUM.

[Prickly Ash.]

Toothache Tree, Angelica Tree, Suterberry, E.; *Clavalier, Frêne Épineux,* Fr.; *Zahnwehholz,* G.

Prickly ash contains a volatile oil, resins, and possibly berberina. Its action appears to be that of an aromatic and somewhat irritant bitter. It increases the flow of saliva and of perspiration. It has been employed in rheumatism and syphilis, and as an emmenagogue.

Dose.—Of a decoction three times weaker than the officinal, a pint may be taken in the course of twenty-four hours. The fluid extract is officinal.

ZINCI ACETAS.

ACETATE OF ZINC.

This salt is used almost entirely as a local astringent, for about the same purposes as the sulphate. It has, however, been employed in a great variety of diseases internally, chiefly as a nervine. In the **Dose** of from eight to thirty grains, one-half to two grammes, it is an emetic. Solutions for external use may be made of the strength of one or two grains to the ounce of water, about two to four per mille.

ZINCI BROMIDUM.

BROMIDE OF ZINC.

This salt is very deliquescent, and must be prescribed in solution or in a very well-protected pill. It has been used like the other bromides, and

may be supposed to combine the tonic effects of zinc with those of the bromine, but the amount of the latter element contained in an ordinary dose of the drug is too small to be of value.

Experience does not prove that this recent introduction is a valuable addition to our list of bromides.

Dose.—One and one-half grain, gradually increased to six grains, ten to forty centigrammes (.10 to .40).

ZINCI CARBONAS PRÆCIPITATUS.

PRECIPITATED CARBONATE OF ZINC.

Kohlensaures Zinkoxyd, G.

A soft, white powder, insoluble in water. It is applied externally as a protective to excoriated and abraded surfaces. It may be used as a powder, or an ointment of any desired strength may be prescribed. The "ceratum zinci carbonatis" is no longer officinal.

ZINCI CHLORIDUM.

CHLORIDE OF ZINC.

Small doses of this salt are said to exercise the tonic effect attributed to zinc preparations in general. Large doses are powerfully irritant, and internally may cause severe poisoning and death. The antidote should be bicarbonate of sodium and demulcents. Applied to the skin, which should be previously deprived of its epidermis, or to a morbid growth, it produces a dry, firm slough, which does not decompose, and separates after a week or more, leaving behind healthy granulations. Its action is attended with severe pain. It is applied in the form of various pastes, of which the excipient is usually flour, or of longitudinal pieces made from the salt alone or with the admixture of nitrate of potassium, or with gutta-percha, which are sometimes thrust into incisions made in suitable positions around the base of a tumor. Lint may be saturated with it and dried, to be applied in pieces of the required size.

The removal of tumors by the caustic rather than by the knife is in general considered bad surgery, as being no more effectual, and causing much more suffering; but there may be occasions when such a procedure is desirable.

Chloride of zinc is one of the least dangerous and most manageable of the class. A solution of this salt is officinal, and used as an antiseptic. Upon the surface of a wound a solution of forty grains to the ounce is said to produce no visible slough, but to protect the discharges from decomposition for several days.

ZINCI IODIDUM.

IODIDE OF ZINC.

This salt has been used especially for strumous inflammations and enlargements, both externally and internally. It has also been given in chorea. Internally it may be given in syrup. Externally it is applied as an ointment (1 to 8), or solutions (one-sixth of one per cent. as a collyrium) to six per cent.

Dose.—One, gradually increased to six grains, six to forty centigrammes (.06 to .40).

ZINCI OXIDUM.

OXIDE OF ZINC.

Oxide of zinc in small doses exercises no marked local or general effects, but it is supposed to be a nervous tonic, and its therapeutical applications are based on this theory. Larger doses, especially if continued, produce gastro-intestinal disturbance and general debility. The oxide made by precipitation is much more active, and consequently more poisonous, than that prepared in the dry way. This fact accounts for the discrepancies in the statements as to the poisonous dose. It has been used in many nervous affections, such as chorea and the nervousness of alcohol. It is often administered to check night-sweats, either alone or in combination with belladonna. Its good effects in this direction, however, will be overshadowed by those of the belladonna, if administered in full dose. Externally it is used in many ulcerations and cutaneous affections, especially of a moist character, like the second stage of eczema. It may be used as a powder, or in the officinal ointment.

Dose.—One to five grains, six to thirty centigrammes, in pill or powder.

ZINCI PHOSPHIDUM.

PHOSPHIDE OF ZINC.

Phosphuret of Zinc, E.

This is to be considered a preparation of phosphorus, rather than of zinc. It is easily decomposed in the stomach, and one-half of the phosphorus undergoes combinations of no physiological importance, while the other becomes sulphuretted hydrogen, which is absorbed and gives rise to the physiological effects of phosphorus. Eight parts of the phosphide are equivalent to one of the phosphorus in activity, although the phosphorus is present in twice that quantity.

Dose.—One-tenth of a grain to one-third, six to twenty milligrammes.

ZINCI SULPHAS.

SULPHATE OF ZINC.

Sulphate of zinc is an irritant. A dose of half a gramme to a gramme is a prompt emetic without much general depressing effect. Larger doses have caused death with symptoms of irritant poisoning, but such cases are rare. Like the oxide, it has been given in chorea. It has also been given in dyspepsia and intestinal inflammations, though the indications for such a use are not clear. It is principally used, locally, as a stimulant astringent, as in mucous inflammations, moist eczema, nasal polypi, atonic ulcers, and soft tumors, which do not call for removal, but simply need to be diminished in size and rendered less sensitive. It is also employed to check various hemorrhages. Solutions of one or two grains to the ounce, two to four per mille, are used as collyria or injections, and somewhat stronger ones can be applied with a brush to the tonsils. Ointments may also be applied of almost the full strength of the sulphate, only enough of the excipient being used to hold it together.

Dose.—As an emetic, eight to thirty grains, one-half to two grammes; it is often combined in the same dose with ipecac. As a tonic and astringent, one to three grains, six to twenty centigrammes, may be given three times a day in pill.

ZINCI VALERIANAS.

VALERIANATE OF ZINC.

This salt has been largely used in a great number of nervous diseases, chiefly with a more or less hysterical basis. Its range is very limited, but it may be used in some of the milder cases of neuralgia.

Dose.—From half a grain to three or five grains, three to twenty centigrammes, in pill.

ZINCUM.

ZINC.

Speltrum.

Metallic zinc is used in pharmacy, but not in medicine. Of its salts several have been individually described. They are all irritant; some, which are most easily soluble (acetate, chloride, sulphate, precipitated oxide), most so, and the comparatively insoluble (carbonate, oxide) least so. The long-continued ingestion of large quantities, which is more likely to take place among brassfounders or other persons exposed to the fumes

(oxide) of heated zinc, gives rise to disorders of the respiratory and digestive organs, such as cough, dyspnœa, and hemoptysis, or vomiting and diarrhœa, and to nervous disturbances, as headache, tremor, pains, and cramps, as well as to chills and to fever. General disturbance of the nutrition and anæmia may be developed. Symptoms usually attributed to zinc are very probably due to the accidental presence of lead or arsenic.

Pipes for the conduction of water are often coated with zinc ("galvanized iron"), and water which has passed through them contains small quantities of zinc in solution. There is, however, the best of reason to suppose that this amount is too small to exercise any injurious effect.

ZINGIBER.

GINGER.

Ingwer, G.

Ginger contains a volatile oil and a resin, which are its active principles, and it possesses the properties common to most of this class of drugs. It is irritant to the skin and mucous membranes, and is used as an aromatic and stimulant to relieve flatulent colicky abdominal pains and diarrhœa. It may be used with cathartics to modify their tendency to produce griping. Ginger has been used externally in poultices and fomentations for the usual counter-irritant purposes of such applications. It is an important condiment in cookery.

Dose.—Eight to thirty grains, one-half to two grammes. The preparations are chiefly used. Ginger-tea can be used for the same purposes as the officinal preparations.

REMARKS UPON SOME NON-OFFICINAL DRUGS.

APIOL

is an oil extracted from parsley (Petroselinum graveolens), and acts, like most essential oils, as a stimulant in small doses, and in large (thirty to sixty grains) as a decided narcotic. It is used in amenorrhœa and dysmenorrhœa, and may be usefully given when the menstrual evacuation is fetid. Parsley and this oil have, like other aromatics, had a reputation in intermittent fever. Apiol is best given in capsules, on account of its odor and taste, in the dose of three to ten drops.

BOLDO.

The leaves and stems of Peumus boldo. It contains a bitter alkaloid and a volatile oil, of which the former seems to possess a tonic action on the intestinal canal, and is also diuretic. The tincture of the plant has, in large doses, something of a narcotic effect. It has been used in anæmia, dyspepsia, and general debility, as well as in catarrhal affections of the urinary passages. There is no reason to suppose that it has any advantages over many officinal aromatic bitters.

BUTYL, OR CROTON CHLORAL HYDRATE,

occurs in thin, white scales, soluble in alcohol, but very slightly so in cold water. Its taste is acrid and disagreeable. Its action is essentially that of chloral, and it is used chiefly in neuralgia of the trifacial, which it is supposed to affect more than other nerves, and more than is done by chloral. It may also be used to allay cough.

Butyl chloral may be administered in glycerine and alcohol, or dissolved in sherry wine.

Dose.—Two to ten grains.

CHAULMOOGRA OIL

is derived from the Gynocardia odorata. It is a semi-solid at ordinary temperatures, and of a disagreeable taste. It has been used in leprosy

with alleged success. Claims have also been made for its usefulness in phthisis, which careful experience has utterly failed to confirm. It is given in doses of ten drops, gradually increased.

CONVALLARIA MAIALIS.

The herb, flowers, and root of the lily of the valley contain a bitter principle, convallaramarin, and the acrid convallarin. Convallarin is a purgative; convallamarin is an emetic, even when injected into the veins or subcutaneous cellular tissue. It also reduces the frequency of the heart's beats, and afterward renders it irregular, finally causing death. It is compared to digitalis, but is said to have no "cumulative" effect. Fifteen to twenty milligrammes have been fatal to dogs. In addition to the properties mentioned, the powder of the herb and root possesses sternutatory powers.

Dose.—Of a saturated tincture, ten minims may be used three times a day to begin with.

COTO BARK.

The bark of a Brazilian tree or trees; of an aromatic odor, and pungent, slightly bitter taste. One variety contains the neutral principle, cotoin, and the other, paracotoin, which, although differing chemically, seem to have an equivalent therapeutic value. There are also present a volatile alkaloid and resins.

The physiological action of coto bark has not been studied. The urine, after its administration, takes a dark-red color with nitric acid. Coto has been successfully used in many cases of diarrhœa, especially that of phthisis, typhoid fever, and other atonic conditions. It does not destroy the appetite. Good results have also been obtained from coto in cases of profuse sweating. It may be given in the form of the tincture (of the officinal strength) in doses from eight to four hundred minims, fifty centigrammes to twenty-five cubic centimeters, per diem.

The **Dose** of cotoin is from one and a half to four grains, ten to twenty-five centigrammes, and of paracotoin a little larger. Large doses appear necessary to insure success. Paracotoin has been given subcutaneously in a few cases of cholera, dissolved in water and glycerine.

CURARE, WOORARA, OR SOUTH AMERICAN ARROW POISON,

is a drug much used in physiological experiments, but seldom in medicine. It is inert in small doses, when taken by the mouth, but when introduced beneath the skin, as by a poisoned arrow or a hypodermic syringe, rapidly produces a general paralysis of the voluntary muscles,

including those of respiration. The heart, however, continues to beat, and, if artificial respiration be practised, the animal may recover after a dose which would be otherwise fatal to a warm-blooded animal. It has been used in strychnia poisoning and in tetanus, but is not, properly speaking, an antidote to strychnia nor correct treatment in tetanus, since it merely restrains muscular manifestation without counteracting the effect of the poison or disease on the spinal cord. It has been given per os as an antiperiodic and stomachic tonic.

The **Dose** is not very definite, as it varies in composition.

DAMIANA,

from Turnera Aphrodisiaca, is an aromatic tonic which is supposed to have a special affinity for the genital organs in increasing both desire, power, and nutrition.

It is used in the form of a fluid extract, of which the dose is from one-half to one fluidrachm, two to four cubic centimeters.

DIOSCOREA VILLOSA, WILD YAM ROOT, COLIC ROOT.

The active acrid principle of this rhizoma has not been isolated, but a resin precipitated from the tincture by water has been found to produce its effect. It seems to have a somewhat stimulating action on the intestinal canal, and in large doses to produce general neuralgic pains with erotic excitement. It has been used in smaller doses as a sedative in nocturnal emissions of a sthenic type, but its especial efficacy is in colicky abdominal pains. In combination with scutellaria and "viburnin" it forms the basis of an unofficinal well-known nostrum, and is said to give prompt relief in dysmenorrhœa.

DITA BARK,

from Alstonia scholaris, of the order Apocyneæ, contains two alkaloids, ditaine and ditamine, to which it properly owes its activity. Ditaine has been carefully examined, physiologically, and found to have an action identical with that of curare. The bark is considered tonic in its native country, and is used in intermittent fevers as a substitute for quinine.

ETHYL BROMIDE, HYDROBROMIC ETHER (C_2H_5Br),

is a somewhat uncertain anæsthetic, unless administered in considerable concentration. Its effects are rapid and pleasant in many cases, but it is not, apparently, as was hoped, among the safest of anæsthetics. In one case death, which could be attributed to nothing but the anæsthetic

agent used, took place twenty-one hours after its administration, the breath and discharges from the bowels having been in the meantime heavily loaded with the characteristic odor of the ethyl bromide. It has been given by the mouth in the dose of ten to twenty drops in neuralgia and sleeplessness.

ETHYL IODIDE, OR HYDRIODIC ETHER (C_2H_5I).

This volatile liquid is not an anæsthetic, but has a slight stimulant effect, and in some cases relieves dyspnœa. It is administered by inhalation, to the extent of ten or fifteen drops.

ETHYLENE BICHLORIDE ($C_2H_4Cl_2$)

is an anæsthetic which acts rapidly and powerfully. It is found always to paralyze the respiratory function before that of the heart, so that its effects can be more easily watched and controlled than is the case with those agents which are likely to produce sudden cardiac paralysis. It is probably safer than chloroform, and a little less so than ether.

FUCUS VESICULOSUS, BLADDER, WRACK.

A sea-weed containing a small amount of iodine, but much less than the algæ growing in deeper water. It has been used for the diminution of obesity, a result which it is said to attain without any disturbance of the general health. It is given in substance or in the form of extract or syrup.

The commencing **Dose** is twenty grains, or from one to two grains of the extract, three times a day.

GURJUN BALSAM.

An oleo-resin obtained from incisions in various trees of the genus Dipterocarpus. Its properties are similar to those of copaiba, but its smell is less disagreeable, and it is less likely to disturb the stomach. It has been used both externally and internally in leprosy, with some good effect in the way of relief. It can also be employed instead of copaiba as an antiblennorrhagic. Mixed with lime-water in the proportion of three parts of the water to one of the oil, it makes a sort of ointment for external use. An emulsion of equal parts of the balsam and lime-water may be given internally in the dose of half an ounce, equalling about two drachms, or eight grammes, of the balsam, twice a day. This is, however, a large dose; from three to six grammes per diem being usually regarded as sufficient, while more is likely to disturb the stomach. It may be given, beside the method just described, in capsules, or in a more dilute emulsion with acacia and some aromatic water.

HELLEBOREIN.

A glucoside obtained from Helleborus viridis. It is a gastro-intestinal irritant in large doses, but in smaller ones produces the same effect on the heart and circulation as digitalis. It quickens and afterward slows the respiration, increases the quantity of the saliva and urine, and produces congestion of the female pelvic organs. Death may take place with symptoms of general muscular paralysis. Practically it has the advantage over digitalis and its preparations, of lesser bulk, and greater definiteness of composition.

Dose.—One-twelfth of a grain, five milligrammes (.006) three times a day.

HOANG-NAN.

The bark of a tree of the genus Strychnos. It contains the alkaloids strychnia and brucia. Its claims to a position as a specific in any disease may be estimated on this basis.

INGLUVIN.

The dried and pulverized lining mucous membrane of the gizzard of the common fowl. The action of the gizzard in digestion is chiefly mechanical, while the true digestive fluid of the fowl is secreted in a dilated portion of the œsophagus just above. Hence the preparation cannot be regarded as physiologically valuable, while experience and chemical experiment place its digestive power much below that of the officinal pepsin. Many other advertised artificial aids to digestion are either devoid of solvent power or owe such as they possess to pepsin.

KAVA-KAVA, OR AVA KAVA.

The root of Piper methysticum. A beverage prepared by chewing this root and making an infusion with water or cocoanut milk is used by many South Sea Islanders for purposes of intoxication, which follows in about twenty minutes after drinking the usual dose of half a cupful. The intoxication is of a drowsy kind, attended with dreaming, which is likely to be of an erotic character, and is succeeded by headache with great susceptibility to noises. It is somewhat diuretic. Therapeutically it may be used as an antiblennorrhagic, even in the most inflammatory period. The latter action is undoubtedly dependent in great measure on its volatile oil and resin, while its intoxicating properties are probably connected with the crystalline substance, avahine, or some alkaloid not yet known.

METHYLENE BICHLORIDE (CH_2Cl_2), CHLORMETHYL.

A colorless liquid of specific gravity 1.344, volatilizing to a dense vapor, which is inflammable. The taste is more agreeable than that of chloroform. It is an anæsthetic, producing, when inhaled, rapid and prolonged narcotism, with a recovery which, after it has begun, is rapid. It has been used with success in many severe surgical operations, and has been considered safer than chloroform, though, as the relative number of inhalations is very much smaller, and as deaths have already occurred, it is doubtful if this claim can be sustained.

NITRO-GLYCERINE, GLONOINE. NITRITE OF POTASSIUM.

These two drugs are closely allied in their properties to nitrite of amyl. They are, however, much slower in their action, and have consequently been employed in diseases in which a more permanent effect is desired than can be attained by the last-named drug, as epilepsy and chronic Bright's disease with high arterial tension. In the latter condition the results have not been so satisfactory as they ought, on some of the theories, to have been. Nitro-glycerine is kept for pharmaceutical purposes, and used in the form of a one per cent. alcoholic solution, of which the dose is from one-half a drop to two or three drops. The larger doses are likely to produce severe headache, lasting for several hours. Therapeutic effects may, however, be obtained from doses insufficient to produce this symptom. The nitrite of potassium has been not very extensively used therapeutically, but may be found a convenient form for obtaining the action of this class of drugs. It is best given in solution as it is very hygroscopic. It is not so likely to produce headache as the nitro glycerine, but causes unpleasant eructations.

The **Dose** is from three to ten grains, twenty to sixty-five centigrammes (.20 to .65).

PANCREATINE, LIQUOR PANCREATICUS.

The pancreas contains four ferments—the amylolytic, or pancreatic diastase, the proteolytic, or trypsin, the fat-emulsifying, and the milk-curdling. Various attempts have been made to utilize these in aid of human digestion, as has been so successfully accomplished in the case of pepsin. The pancreas itself has been chopped up with meat and injected into the rectum, whence the mixture appears to be absorbed. A glycerine extract also possesses digestive powers. The various pancreatines represent its action more or less perfectly, but are prone to decomposition, and not very trustworthy. They may, however, be utilized in the manufacture of emulsions of beef fat or cod-liver oil. Pancreatine in the presence of pepsin is di-

gested, and it is difficult, if not impossible, to get pancreatine through the stomach, so as to exercise its digestive effects in the duodenum. It would appear, however, that some preparations may have an effect a short time after entering the stomach. It has always been supposed that an alkaline medium was necessary in order that pancreatine may exercise its digestive powers; but while this is probably true as regards the digestion of starch and oil, it appears that albuminoid substances are affected by the trypsin even in a slightly acid solution. "The Liquor Pancreaticus," prepared by digesting the finely chopped pancreas with four times its weight of dilute spirit, possesses the starch- and protein-digesting ferments, and if the author may be allowed to judge from very limited observations with cod-liver oil and yolk of egg, also the fat-emulsifying. It is a nearly clear alcoholic solution, and has but little taste or smell, except that of the alcohol. It may be used either to partially digest the food, whether milk, gruel, soups, or jellies, before eating, or taken with the food for the same purpose. These peptonized foods, administered either by the mouth or rectum, are of great value in the nutrition of dyspeptic cases, whatever may be the character of the disease which prevents the stomach from performing its functions without assistance.

PAPAYA, PAPAYINE, AND PAPAYOTIN.

The juice of Carica papaya and the principles derived from it have the power of softening and dissolving fibrin. The juice can be allowed to dry spontaneously, and being redissolved retains the same power. It has not been found to be of great efficacy clinically, and its high price still further detracts from its practical value. Papayine has been injected into tumors, the tissues of which it dissolves in its neighborhood, but, unfortunately, produces a good deal of pain and febrile action.

Secretions having similar properties are furnished by several plants, and substances may be extracted from others which dissolve meat as well as digest starchy food—that is, combine the properties of diastase and pepsin. They have not, however, been practically used.

PISCIDIA ERYTHRINA, JAMAICA DOGWOOD.

The root bark of this leguminous tree has been long used in Jamaica for the poisoning of fish, the larger being so stupefied that they may be easily captured, and the smaller being killed. Upon other animals it is found to have a decidedly narcotic effect, producing muscular relaxation, incoordination, blunted sensibility, increased frequency of the heart's beat, and increased followed by diminished vascular tension. Death takes place by asphyxia. In man it has, perhaps, similar effects, but in the

doses usually given they are much less marked. It has been used as a general nervous sedative. It is a somewhat uncertain hypnotic, more nearly akin to valerian than to the other powerful soporifics, and its use is not attended with any unpleasant after-effects. It has been found useful in neuralgia and whooping-cough.

The **Dose** of the fluid extract is from half a drachm to a drachm, thirty to sixty cubic centimeters, which may be repeated at intervals of some hours.

QUEBRACHO (BLANCO)

is the bark (though the wood has been used) of Aspidosperma quebracho, a Brazilian tree of the order Apocynaceæ. Its taste is disagreeable. It contains an alkaloid, which, however, has not been so carefully studied as the preparations representing the whole bark. In its native country it is reputed febrifuge, but this claim has not been verified by further experiment. It possesses, however, a well-marked influence over the symptom dyspnœa, reducing the frequency of the respirations, and rendering them more effective and less distressing. It seems to be of special value in spasmodic asthma, or in that arising from emphysema or bronchitis, though other forms have been much benefited by it. In animals, dyspnœa, motor paralysis, and death have been produced by it, though, probably, with larger doses, in proportion, than have been given to man. The heart and temperature are not greatly affected.

Dose of the fluid extract is, on an average, half a fluidrachm, two grammes. Various other preparations may be used, as wine, tincture, elixir, etc.

RESORCIN, $C_6H_4(H_2O)$.

Obtained by treating certain resins (galbanum and asafœtida) with potassa, and resembling orcin, the coloring matter of orchil, whence its name. It is closely related to phenol, and is, like it, a powerful antiseptic in the proportion of one to one hundred. It is soluble in all the ordinary solvents, except chloroform and sulphide of carbon. Administered by the stomach, it is eliminated almost entirely and rapidly by the urine, and develops therein a blue color. It is much less poisonous than phenol, and such symptoms as may be produced by very large doses rapidly disappear, unless the dose is large enough to be fatal, which requires in the lower animals nearly one part in a thousand of their weight. In quantities of from one-third to more than one-half of that just mentioned, it produces trembling, clonic convulsions, and accelerations of the respiration and circulation, lasting for about an hour. In man it may produce some excitement and vertigo, besides the action on heart and respiration just stated.

Clinically, it has been both affirmed and denied that the temperature is lowered, but it is certain that if such an action takes place it is brief. Resorcin has been used in fevers, as have many other antiseptics, but without any remarkable effects. It has, of course, the great advantage over carbolic acid of much less toxic properties. Externally, it may be used for all the surgical purposes of carbolic acid, and is preferable to it on account of the absence of odor, of danger of poisoning, and its solubility in any proportion of water. From one to four grammes, fifteen to sixty grains per diem, have been used in typhoid fever and acute rheumatism.

TRIMETHYLAMINE $(CH_3)_3N$,

often erroneously called by the name of propylamine, with which it is identical in elementary composition, is a colorless, volatile alkaloid of fishy odor, contained in many vegetable and animal substances, but obtained commercially from herring pickle. Its hydrochlorate is crystallizable, and is to be preferred for medicinal purposes as being less irritating. Large doses appear capable of producing death in animals, with symptoms, at first of irritation, and afterward of paralysis of the general motor, cardiac, and respiratory systems. It is an irritant to mucous membranes, and gives rise to local irritation when given by the stomach or subcutaneously. In medicinal doses it causes a fall of temperature and pulse without much action on the secretions. It is claimed to have been used with great success in acute rheumatism, diminishing with rapidity the pain and fever, and, according to some, shortening the duration of the disease, while, from the statements of others, the course of the disease is unaffected.

The **Dose** is twenty to sixty minims of the (commercial?) alkaloid, diluted, sweetened, and flavored; of the hydrochlorate, two or three grains may be given often enough to amount to from eight to fifteen grains, one-half to one gramme, in the twenty-four hours.

CLASSIFIED INDEX OF DRUGS.

ACID BEVERAGES.
Acidum citricum, Acidum phosphoricum dilutum, Acidum tartaricum, Rhus glabra, Tamarindus.

ALTERATIVES.
Acidum arseniosum, Acidum nitricum, Acidum nitro-hydrochloricum, Iodum, (Ammonii, Potassii, Sodii iodidum), Arsenii iodidum, Liquor arsenii et hydrargyri iodidi, Syrupus acidi hydriodici, Iodoformum, Argenti iodidum, etc., Auri et sodii chloridum, Sanguinaria, Sarsaparilla, Stillingia, Viola tricolor.

AMAUROSIS, to relieve.
Strychnina, Pulsatilla.

AMENORRHEA. (See Emmenagogues.)

ANÆMIA. (See Reconstructive Tonics.)
Ferrum (p. 125 et seq.), Acidum arseniosum, Mangani sulphas, Oleum morrhuæ.

ANÆSTHETICS.

LOCAL.
Acidum hydrocyanicum dilutum, Potassii cyanidum, Oleum amygdalæ amaræ, Acidum carbolicum, Aconitum, Carbonei bisulphidum, Chloroformum, Quillaia, *Saponin.*

GENERAL.
Æther, Æther aceticus, Chloroformum, *Bichloride of methylene*, *Bichloride of ethylene*, *Bromide of ethyl*, *Nitrous oxide.* (See Ammonii Nitras.)

ANALGESICS.
Aconitum, Belladonna, *Butyl chloral*, Gelsemium, Morphinum, Oleum menthæ piperitæ, Opium, Stramonium, *Jamaica dogwood.*

ANGINA PECTORIS, to relieve.
Amyl nitris, *Nitro-glycerine*, *Nitrite of potassa.*

ANTACIDS.
Calcii carbonas præcipitatus, Creta præparata, Liquor calcis, Syrupus calcis, Magnesia, Magnesii carbonas, Lithii carbonas, Lithii citras, Potassa, Potassii carbonas, Potassii citras, Potassii tartras, Potassii bitartras, Potassii acetas, Potassii et sodii tartras, Soda, Sodii bicarbonas, Sodii acetas, Sodii boras, Sodii phosphas, Sapo, Sapo viridis.

ANTHELMINTICS.
Aspidium, Azedarach, Brayera, Chenopodium, Granatum, Kamala, Pepo, Quassia, Santonica, Sodii santoninas, Spigelia, Thuja. (See also Cathartics.)

ANTIPYRETICS.
Acidum salicylicum, Lithii salicylas, Sodii salicylas, Salicinum, Aconitum, Cinchona, cinchoniæ sulphas, etc., Quillaia, Quinia, quinidiæ sulphas, etc., Digitalis, Gelsemium, Hydrargyri chloridum mite, Veratrum, *Trimethylanin*, Aqua.

ANTISEPTICS.
Acidum boricum, Acidum carbolicum, Acidum salicylicum, Acidum sulphurosum, Alcohol, Magnesii, Potassii, Sodii sulphis, Sodii bisulphis, Sodii hyposulphis, Sodii sulphocarbolas, Aqua chlori, Calx chlorata, Liquor sodæ chloratæ, Creasotum, Chloral, Oleum eucalypti, Oleum terebinthinæ, Thymol, Zinci chloridum, *Resorcin.*

ANTISPASMODICS.
Allium, Ammoniacum, Asafœtida, Atropina, Cypripedium, Lobelia, Lupulinum, Moschus, Scutellaria, Sumbul, Tabacum, Valeriana, Ammonii valerianas, Zinci valerianas, Quininæ valerianas, Viburnum, *Dioscorea villosa*, Charta potassii nitratis, Amyl nitris, Chloral, Chloroformum, Æther, Spiritus ætheris compositus, Potassii bromidum.

ASTHMA, to relieve.
Morphina, Amyl nitris, *Nitro-glycerine*, Stramonii folia, Atropia, Potassii iodidi, Syrupus acidi hydriodici, Charta potassii nitratis, Grindelia, Lobelia. (See also Antispasmodics.)

ASTRINGENTS.

MINERAL.
Acidum sulphuricum aromaticum, Alumen, Aluminii hydras, Bismuthi citras etc., Ferri chloridum, Ferri sulphas, Liquor ferri chloridi, Liquor ferri subsulphatis, Liquor ferri tersulphatis, Tinctura ferri chloridi, Liquor plumbi subacetatis, Plumbi acetas, Plumbi carbonas, Plumbi nitras, Cupri sulphas, Zinci sulphas, Zinci oxidum, Argenti nitras.

VEGETABLE.
Acidum gallicum, Acidum tannicum, Catechu, Chimaphila, Cinnamomum, Collodion stypticum, Galla, Geranium, Hæmatoxylon, Hamamelis, Kino, Krameria, Prinos, Quercus, Rubus, Rumex, Salvia, Uva ursi, Vinum rubrum.

BEDSORES, to prevent and relieve.
Acidum tannicum, Alcohol, Emplastrum plumbi. (See also Protectives and Astringents.)

BOILS, to prevent.
Calx sulphurata, Potassa sulphurata

BRONCHITIS, to relieve.
Acidum benzoicum, Acidum hydrocyanicum dilutum, Allium, Ammoniacum, Ammonii carbonas, Ammonii chloridum, Antimonii et potassii tartras, Balsamum tolutanum, Cetraria, Cimicifuga, Copaiba, Cubeba, Dulcamara, Eucalyptus, Glycyrrhiza, Grindelia, Inula, Iodum, Ipecacuanha, Marrubium, Morphina, Oleum morrhuæ, Oleum terebinthinæ, Pix liquida, Sanguinaria, Senega, Scilla. (See also Demulcents, Expectorants, Mucous Alteratives.)

BURNS.
Amylum, Glyceritum vitelli, Linimentum calcis, Linimentum terebinthinæ, Petrolatum, Unguentum zinci oxidi. (See also Protectives.)

CARDIALGIA, to relieve.
Bismuthi subnitras, Sodii hyposulphis, etc. (See also Antacids.)

CARMINATIVES.
Anisum, Cardamomum, Carum, Caryophyllus, Coriandum, Fœniculum, Illicium, Pimenta, Mentha piperita et viridis, Myristica, Piper, Zingiber, Tinctura lavandulæ composita, Spiritus ammoniæ aromaticus. (See also Spiritus, p. 294.)

CATHARTICS.
Aloes, Apocynum, Chelidonium, Asclepias, Bryonium, Cambogia, Cassia fistula, Colocynth, Elaterin, Euonymus, Eupatorium, Ficus, Frangula, Jalapa, Juglans, Leptandra, Manna, Oleum ricini, Oleum tiglii, Phytolacca, Podophyllum, Prunum, Rheum, Rumex, Sambucus, Scammonium, Senna, Hydrargyri chloridum mite, Hydrargyrum cum creta, Massa hydrargyri, Magnesia, Magnesii carbonas, Magnesii citras, Magnesii sulphas, Potassii bitartras, Potassii et sodii tartras, Sodii sulphas.

CHOLAGOGUES.
Euonymus, Iris, Leptandra, Podophyllum, Hydrargyri chloridum mite, etc.

CHOLERA, treatment of.
Atropina, Morphina, Sodii chloridum.

CHOREA, treatment of.
Acidum arseniosum, etc., Chloral, Cimicifuga, Conium, Ferrum, etc., Potassii bromidum, etc.

COLIC, to relieve.
Æther, Spiritus ætheris compositus, Spiritus ætheris nitrosi, Chloroformum, Morphina, Opium, Mentha piperita, Viburnum, *Dioscorea villosa*.

COLLAPSE, to relieve.
Æther, Alcohol, etc., Aqua ammoniæ, Atropina, Sodii chloridum (intravenous injection of), Morphina. (See Cerebral, General, and Cardiac Excitants, and Irritants.)

CONGESTION OF BRAIN AND CORD.
Belladonna, Ergota, Potassii bromidi. (See also Cathartics and Irritants.)

CONJUNCTIVITIS, treatment of.
Alumen, Argenti nitras, Cupri sulphas, Sodii boras, Aqua camphoræ.

CONVULSIONS, treatment of. (See Antispasmodics.)

CORYZA, treatment of.
Camphora, Bismuthi subnitras.

COUGH.
Morphina, Acidum hydrocyanicum dilutum, Ammoniacum, Ammonii chloridum, Antimonii et potassii tartras, Apomorphiæ hydrochloras, Castanea, Cubeba, Chloroform, Chloral, Ipecacuanha, Pix liquida, Prurus virginiana, Scilla, Mistura glycyrrhizæ composita.

CROUP, treatment of.

MEMBRANOUS.
Acidum lacticum, Alumen, Liquor calcis, Liquor potassæ, Hydrargyri chloridum mite, Hydrargyri subsulphas flava, Sodii benzoas (See also Diphtheria and Emetics.)

CATARRHAL and SPASMODIC.
Spiritus ætheris nitrosi, Lobelia, Aconitum, Senega. (See also Emetics.)

DELIRIUM TREMENS, treatment of.
Alcohol, Arnica, Capsicum, Chloral, Digitalis, Opium, Potassii bromidum.

DEMULCENTS.
Acacia, Althæa, Amylum, Castanea, Cetraria, Chrondus, Cydonium, Glycerinum, Glyceritum amyli, Glyceritum vitelli, Glycyrrhiza, Ichthyocolla, Linum, Mistura amygdalæ, Sassafras medulla, Sevum, Tragacantha, Triticum, Ulmus.

DIABETES, treatment of.
Acidum lacticum, Amygdala dulcis, Codeina, Glycerinum, Opium, Sodii bicarbonas.

INSIPIDUS.
Ergota, Valeriana, Acidum nitricum. (See also Tonics and Astringents.)

DIAPHORETICS.
Aconitum, Alcohol, Antimonii et potassi tartras, Apocynum, Asclepias, Dulcamara, Lappa, Pilocarpus, Sarsaparilla, Liquor ammoniæ acetatis, Spiritus ætheris nitrosi, Pulvis ipecacuanhæ et opii, Pulvis morphinæ compositus. (See many volatile oils, etc.)

DIARRHŒA.
Aluminii hydras, Argenti nitras, Bismuthi subnitras, Camphora, Capsicum, Catechu, Cetraria, Cinnamomum, Cupri sulphas, Gaultheria, Geranium, Guarana, Hæmatoxylon, Ipecacuanha, Kino, Krameria, Liquor calcis, Liquor ferri nitratis, Morphina, Oleum ricini, Opium, Pepsinum saccharatum, Plumbi acetas, Sodæ phosphas, Rheum, Rubus, Zingiber, *Coto bark.*

DIGESTIVES.
Acidum hydrochloricum, Acidum lacticum, Extractum malti, Fel bovis, Glycerinum, Pepsinum saccharatum, *Pancreatin*, *Papaya*, *Ingluvin.*

DIPHTHERIA, treatment of.
Acidum lacticum, Acidum carbolicum, Acidum salicylicum, Alcohol, Capsicum, Guiaci resina, Liquor calcis, Sodii sulphocarbolas, Sulphur sublimatum, Tinctura ferri chloridi, Sodii benzoas.

DISINFECTANTS.
Acidum carbolicum, Acidum sulphurosum, Aqua chlori, Calx, Calx chlorata, Ferri sulphas, Liquor sodæ chloratæ, Plumbi nitras, Potassii permanganas, Zinci chloridi. (See Antiseptics.)

DIURESIS, to diminish.
Acidum gallicum, Ergota.

DIURETICS.
Apocynum, Aqua, Cantharides, Caulophyllum, Chimaphila, Colchicum, Copaiba, Cubeb, Digitalis, Dulcamara, Euonymus, Juniperus, Lappa, Lithii citras, Oleum terebinthinæ, Potassii acetas, Potassii citras, Potassii bicarbonas, Potassii bitartras, Potassii et sodii tartras, Sambucus, Scoparius, Sodii acetas, Sodii bicarbonas, Spiritus ætheris nitrosi, Triticum, Uva ursi.

RENAL AND VESICAL ALTERATIVES.
Acidum benzoicum, Ammonii benzoas, Lithii benzoas, Sodii benzoas, Lithii citras, Buchu, Matico, Pareira. (See Mucous Alteratives.)

DROPSY, treatment of.
(See Diuretics, Diaphoretics, Cathartics, Cardiac Tonics.)

DYSENTERY, treatment of.
Argenti nitras, Ipecacuanha, Magnesii sulphas, Opium, Plumbi acetas, Sodii sulphas. (See also Demulcents and Astringents.)

DYSMENORRHŒA, relief of.
Amyl nitris, *Apiol*, Chloroformum, Guaiaci resina, Scutellaria, Viburnum, *Dioscorea villosa.*

DYSPEPSIA, treatment of.
Acidum arseniosum. (See Digestives, Antacids, Bitter Tonics, Carminatives, Cathartics.)

ECZEMA, treatment of.
Acidum tannicum, Glycerinum, Petrolatum, Potassa, Potassi carbonas, Sapo viridis, Sodii bicarbonas, Unguentum hydrargyri oxidi rubri, Unguentum hydrargyri ammoniati, Unguentum picis liquidæ, Unguentum zinci oxidi.

EMETICS.
Alumen, Antimonii et potassii tartras, Apocynum, Apomorphia hydrochloras, Asclepias, Cupri sulphas, Hydrargyri subsulphas flavus, Ipecacuanha, Lobelia, Phytolacca, Sanguinaria, Scilla, Sinapis, Stillingia, Tabacum, Zinci sulphas.

EMMENAGOGUES.
Aloes, Caulophyllum, Cimicifuga, Ferrum, etc., Myrrha, Sabina, Tanacetum.

EPILEPSY, treatment of.
Amyl nitris, Belladonna, Potassii bromidum, etc., Sodii boras, Strychnina.

EPISPASTICS.
Aqua ammoniæ, Cantharis, Capsicum, Mezereon, Sinapis.

ERRHINES OR STERNUTATORIES.
Quillaia, Sanguinaria, Tabacum.

ERYSIPELAS.
Acidum carbolicum, Alcohol, etc., Argenti nitras, Camphora, Quinia, etc., Tinctura ferri chloridi, *Ethereal tincture of iodine.*

ESCHAROTICS.
Acidum aceticum, Acidum arseniosum, Acidum carbolicum, Acidum chromicum, Acidum nitricum, Acidum sulphuricum, Argenti nitras, Bromum, Liquor hydrargyri nitratis, Potassa, Potassa cum calce, Potassii bichromas, Zinci chloridi.

EXCITANTS OR STIMULANTS.

CEREBRAL AND GENERAL.
Æther aceticus, Alcohol, etc., Ammonii carbonas, Ammonii chloridum, Arnica, Caffeina, Camphora, Cannabis, Erythroxylon, Guarana, Morphina, etc., Oleum æthereum, Opium, Phosphorus, Vinum album, etc.

CARDIAC.
Absinthium, Atropina, Hyoscyamus, etc., Morphina, Myrrha, Oleum terebinthinæ, etc., Serpentaria, Stramonium, Tinctura lavandulæ comp., etc., Vinum album, etc., Vinum aromaticum. (See also General Stimulants.)

SPINAL.
Ignatia, Nux vomica, Strychnina, Picrotoxinum, *Hoang nan.*

RESPIRATORY.
Atropina, Strychnina, Grindelia, *Quebracho.*

UTERINE.
Ergota, Gossypii radicis cortex, Quinina, etc., Sodii biboras, Ustilago.

EXPECTORANTS. (See Cough, Bronchitis.)

FETOR OF BREATH, to remove.
Myrrha, Oleum terebinthinæ, Oleum eucalypti, Potassii chloras, Potassii permanganas. (See also Digestives and Antiseptics, Cathartics, etc.)

FETOR OF MENSTRUATION, to remove.
Apiol. (See also Antiseptics.)

FISSURE OF ANUS, treatment of.
Acidum tannicum, Tinctura krameriæ. (See Astringents.)

FLAVORING.
Amygdala amara, etc., Anisum, Balsamum peruvianum, Balsamum tolutanum, Calamus, Cardamomum, Caryophyllus, Cinnamomum, Coriandum, Gaultheria, Hedeoma, Illicium, Lavandula, Limonis cortex, Macis, Melissa, Mentha piperita, etc., Myristica, Rosmarinus, Sassafras, Vanilla. (See also Aquæ, Olea, Spiritus, Syrupi.)

FLOODING, treatment of.
Aqua (fervida), Ergota, Liquor ferri chloridi, Liquor ferri subsulphatis, Tinctura iodi, Ustilago.

GASTRALGIA.
Acidum hydrocyanicum dilutum, Acidum arseniosum, Bismuthi subnitras, Mangani oxidum nigrum, Morphina, Opium, Sodii bicarbonas.

GOITRE.
Iodum, Oleatum hydrargyri, Potassii iodidum.

EXOPHTHALMIC.
Aconitum.

GONORRHŒA.
(See Astringents, Renal and Vesical Alteratives, Mucous Alteratives.)

GOUT, treatment of.
Ammonii phosphas, Colchicum, Lithii carbonas, Lithii citras. (See also Antacids.)

HAY FEVER, to relieve.
Acidum arseniosum, Quinina. (See Tonics.)

HEADACHE, relief of.
Acidum hydriodicum, Ammonii carbonas, Ammonii valerianas, *Butyl chloral*, Caffeina, Cannabis, Digitalis, Ergot, Guarana, Morphina, Potassii bromidum, etc., Potassii iodidum.

HEART DISEASE.
(See Excitants, cardiac; Tonics, cardiac; Sedatives, cardiac; also Dropsy.)

HEMOSTATICS.
Acidum gallicum, Acidum sulphuricum dilutum, Acidum tannicum, Collodium stypticum, Digitalis, Ergota, Ferri et ammonii sulphas, Liquor ferri chloridi, Matico. (See Astringents.)

HYDROPHOBIA, treatment of.
Chloral, Curare, Scutellaria. (See also Escharotics.)

HYSTERIA, treatment of.
(See Antispasmodics.)

INCONTINENCE OF URINE, treatment of.
Belladonna, Strychnia.

INTERMITTENT FEVER, treatment of.
Acidum arseniosum, Acidum carbolicum, Acidum salicylicum, Apocynum, Cinchona, etc., Chinoidinum, Quinina, etc., Cornus, Eucalyptus, Magnolia, Piper, Salicinum, Sodii salicylas.

IRRITANTS, CUTANEOUS.
Ammoniacum, Antimonii et potassii tartras, Aqua ammoniæ, Cantharis, Capsicum, Carbonii bisulphidum, Chelidonium, Chloroformum, Chrysarobinum, Galbanum, Linimentum ammoniæ, etc., Mezereon, Oleum terebinthinæ, etc., Oleum tiglii, Potassa, etc., Sanguinaria, Sapo viridis, Sinapis, Staphisagria, Styrax, Veratrina.

ITCH, treatment of.
Styrax, Unguentum sulphuris, Unguentum sulphuris alkalinum.

ITCHING, to relieve.
Acidum carbolicum, Acidum citricum, Acidum hydrocyanicum dilutum, Acidum tannicum, Ceratum camphoræ, Cupri sulphas, Glycerinum, Grindelia, Petrolatum, Potassii carbonas, Sodii boras, Unguentum zinci oxidi.

LEAD POISONING, treatment of.
Magnesii sulphas, Potassii iodidum, Morphina, Strychnina, Ferrum, etc. (See Cathartics.)

LEUCÆMIA, treatment of.
Acidum arseniosum, Ferrum, etc., Oleum morrhuæ, Quinina, etc.

LEUCORRHEA, treatment of.
(See Tonics and Astringents.)

LOCOMOTOR ATAXIA, treatment of.
Argenti nitras, Phosphorus, Potassii iodidum.

MENORRHAGIA, to relieve.
Ergota, Ustilago. (See Astringents.)

MUCOUS ALTERATIVES (urinary and respiratory).
Ammonii carbonas, Ammonii chloridum, Copaiba, Cubeba, Matico, Oleum santali, Oleum terebinthinæ, Styrax, Syrupus acidi hydriodici.

MYDRIATICS.
Atropina, Duboisia, Belladonna, Hyoscyamus, Stramonium.

MYOTICS.
Physostigma.

NEURALGIA, to relieve.
(See Analgesics, Tonics.)

NIGHT-SWEATS.
Acidum sulphuricum aromaticum, Atropina, Ergota, Tinctura ferri chloridi, Picrotoximum, Pilocarpinæ hydrochloras, Salvia, Zinci sulphas, etc.

NARCOTICS.
Absinthium, Æther, Alcohol, Arnica, Belladonna, Chloral, Chloroformum, Codeina, Dulcamara, *Ethylene bromide*, *Ethylene bichloride*, Humulus, Lactucarium, *Methylene bichloride*, Morphina, Myristica, Opium, Phytolacca, *Ava kava*, *Piscidia erythrina*.

NEURALGIA, treatment of.
(See Analgesics, General Stimulants, Tonics.)

NUTRIENTS.
Cetraria, Extractum malti, Ficus, Mel, Oleum gossypii, etc., Oleum morrhuæ, Prunus, Saccharum.

OSTEOMALACIA, treatment of.
Calcii phosphas præcipitata, Oleum morrhuæ, Syrupus calcii lactophosphatis, Syrupus hypophosphitum, etc.

OZÆNA, treatment of. (See Antiseptics.)

PARALYSANTS.

GENERAL MOTOR.
Conium, *Curare*, *Dita*, *Trimethylamin*.

VASO-MOTOR.
Alcohol, etc., Amyl nitris, *Nitrite of potassium*, *Nitroglycerine*.

PARASITICIDES.
Acidum carbolicum, Acidum sulphurosum, Benzinum, Hydrargyri chloridum corrosivum, Unguentum hydrargyri, Unguentum hydrargyri ammoniati, Unguentum hydrargyri nitratis, Unguentum hydrargyri oxidi flavi, Unguentum sulphuris, Unguentum sulphuris alkalinum, Oleum picis liquidæ, Potassa sulphurata, Sodii hyposulphis, Staphisagria.

PNEUMONIA, treatment of.
Alcohol, Ammonii carbonas, Antimonii et potassii tartras, Atropina, Morphina, Quinina, etc., Senega, Spiritus vini gallici, etc., Vinum album, etc.

PROTECTIVES.
Adeps, Aluminii hydras, Amylum, Bismuthi carbonas, etc., Cera, Ceratum, Ceratum plumbi subacetatis, Cetaceum, Collodion, Creta præparata, Emplastrum ichthyocollæ, Emplastrum plumbi, Emplastrum Saponis, Gossypium, Gutta-percha, Liquor sodii silicatis, Lycopodium, Mangani oxidum nigrum, Oleum gossypii, Oleum theobromæ, Petrolatum, Plumbi carbonas, Tinctura benzoinæ composita, Unguentum diachyli, Unguentum plumbi carbonas, Unguentum zinci oxidi, Zinci carbonas, Zinci oxidum. (See Demulcents.)

PSORIASIS.
Acidum arseniosum, Chrysarobinum, Lappa.

PURPURA, treatment of.
Ergota, Ferrum, etc., Tinctura ferri chloridi, Oleum terebinthinæ.

PYELITIS. (See Diuretics and Mucous Alteratives.)

RACHITIS, treatment of. (See Osteomalacia.)

RHEUMATISM, treatment of.

ACUTE.
Acidum salicylicum, Sodii salicylas, Salicinum, Aconitum, Arnica, Cantharis, Cimicifuga, Linimentum ammoniæ, Oleum gaultheriæ, Potassii bicarbonas, Potassii acetas, Potassii citras, Staphisagria, Syrupus calcis, *Trimethylamin*.

CHRONIC.
Aconitum, Dulcamara, Guiaci resina, Oleum morrhuæ, Phytolacca, Potassii iodidum, Pulsatilla. (See Irritants and Diaphoretics.)

SECRETIONS, to check.
Acidum gallicum, Atropina, Ergota. (See also Astringents.)

SCROFULA.
Ferrum, etc., Iodum, etc., Oleum morrhuæ, Potassii iodidum, Syrupus calcii lactophosphatis, Syrupus hypophosphitum.

SEDATIVES.

CEREBRAL AND GENERAL.
Acidum hydrobromicum, Ammonii bromidum, Calcii bromidum, Camphora monobromata, Lithii bromidum, Potassii bromidum, Sodii bromidum. (See Antispasmodics.)

SPINAL AND NERVOMUSCULAR.
Ammonii bromidum, etc., Gelsemium, Physostigma, Pulsatilla.

CARDIAC.
Aconitum, Antimonii et potassii tart., etc., Colchicum, Gelsemium, Veratrina, Veratrum viride. (See Antispasmodics, Analgesics, and Anæsthetics.)

SEXUAL EXCITEMENT, to allay.
Camphora, Humulus, Potassii bromidum.

SIALAGOGUES.
Hydrargyri chloridum mite, etc., Pilocarpus, Pyrethrum.

SKIN DISEASES.
(See Demulcents, Irritants, Alteratives, Eczema, and Psoriasis, treatment of.)

SLEEPLESSNESS, to relieve.
Acidum lacticum, Chloral, Codeina, Humulus, Lupulinum, Hyoscyamus, Opium (*Narceine*), Potassii bromidum, etc., *Piscidia erythrina.*

STOMATITIS, APHTHÆ AND SALIVATION, to relieve.
Atropina, Myrrha, Oleum theobromæ, Potassii chloras, Sodii bicarbonas, Sodii boras, Tinctura guaici ammoniata. (See Demulcents, Protectives, Astringents, Antiseptics.)

SYPHILIS, treatment of.
(See Alteratives, Escharotics, Antiseptics.)

SYNCOPE.
Alcohol, Ammoniæ carbonas, Aqua ammoniæ, Amyl nitris, Atropina, Sodii chloridum (intravenous injection), Tinctura lavandulæ composita, etc., Vinum. (See Irritants, Cardiac Excitants.)

SOLVENTS AND EXCIPIENTS.
Acidum oleicum, Acidum sulphuricum, Acidum tartaricum, Collodium, Glycerinum, Mel despumatum, Mel rosæ, Oleum gossypii, Oleum olivæ, Petrolatum, Saccharum, Saccharum lactis, Syrupus.

TAPEWORM.
(See Anthelmintics.)

TETANUS.
(See Antispasmodics and Spinal Sedatives.)

TONICS.

RECONSTRUCTIVE.
Acidum phosphoricum; Calcii phosphas præcipitatus, Calcii hypophosphis, Potassii hypophosphis, Sodii hypophosphis, Ferrum, etc., Mangani sulphas, Syrupus ferri, quininæ et strychniæ, Syrupus ferri lactophosphis.

NEUROSTHENIC.
Acidum arseniosum, etc., Ferrum, etc., Quinina, etc., Phosphorus, Zinci phosphidum.

CARDIAC.
Caffeina, Cimicifuga, Digitalis, Scilla, *Convallaria, Helleborein.*

BITTER AND STOMACHIC.
Absinthium, Anthemis, Aurantii amari cortex, Calumba, Cascarilla, Cetraria, Chinoidinum, Chirata, Cimicifuga, Cinchona, etc., Cornus, Eucalyptus, Eupatorium, Gentiana, Humulus, Hydrastis, Lappa, Matricaria, Menispermum, Prinos, Prunus virginiana, Quassia, Rheum, Salicinum, Serpentaria, Taraxacum, Xanthoxylon, *Boldo, Dita bark.*

TONSILLITIS, treatment of.
Aconitum, Argenti nitras, Capsicum, Guiacum, Potassii chloras.

TOOTHACHE, to relieve.
Acidum carbolicum, Mastiche, Oleum caryophylli, Pyrethrum.

TYMPANITES, to relieve.
Oleum terebinthinæ. (See Antispasmodics and Carminatives.)

TYPHOID CONDITION, treatment of.
Alcohol, Ammonii carbonas, Camphora, Moschus, Quinina, etc., Serpentaria.

ULCERS, treatment of.
Argenti nitras, Balsamum peruvianum, Bismuthi subnitras, Carbo ligni, Ceratum cetacei, Ceratum resinæ, Ceratum sabinæ, Emplastrum plumbi, Petrolatum, Unguentum diachyli, Unguentum zinci oxidi, Zinci oxidum. (See Astringents, Antiseptics.)

VOMITING, to check.
Acidum carbolicum, Bismuthi subnitras, Cerii oxalas, Creasotum, Liquor calcis, Pepsinum saccharatum, Plumbi acetas, Vinum ipecacuanhæ.

VISION, to increase acuteness of.
Sodii santoninas, Strychnina.

WHOOPING-COUGH, treatment of.
Acidum hydrocyanicum, Castanea, Chloral, Grindelia, Lobelia, Potassii bromidi, etc.

ZYMOTIC DISEASES, treatment of.
Acidum carbolicum, Acidum salicylicum, Sodii salicylas, Aconitum, Liquor ammoniæ acetatis, Quinina, etc., Sodii hyposulphis, etc., Sodii sulphocarbolas, Spiritus ætheris nitrosi, Veratrum viride.

POISONS AND ANTIDOTES.

Poisons.	*Antidotes.*
ACIDS, ACETIC, HYDROCHLORIC, NITRIC, SULPHURIC.	Alkalies or alkaline earths or their carbonates, preferably MAGNESIA; SYRUPUS CALCIS or SAPO VIRIDIS; Demulcents.
ACID, ARSENIOUS, AND ITS PREPARATIONS.	FERRI OXIDUM HYDRATUM, and preferably FERRI OXIDUM HYDRATUM CUM MAGNESIA.
ACID, CARBOLIC.	OLEUM GOSSYPII, OLEUM OLIVÆ, or other oils; SYRUPUS CALCIS; Stimulants.
ACID, HYDROCYANIC, CYANIDE OF POTASSIUM, AND OIL OF BITTER ALMONDS.	ATROPINA, subcutaneously; AQUA AMMONIÆ; ALCOHOL; Emetics.
ACID, OXALIC.	Lime salts; CALCIS CARBONAS PRÆCIPITATUS; SYRUPUS CALCIS; MAGNESIA.
ACONITE.	MORPHINA, subcutaneously; ATROPINA, subcutaneously; AQUA AMMONIÆ; ALCOHOL; DIGITALIS.
ALCOHOL.	AQUA AMMONIÆ; Emetics; External stimulation.
ANTIMONY, CHLORIDE OF.	CALCIS CARBONAS PRÆCIPITATUS; MAGNESIA; Demulcents; ACIDUM TANNICUM.
ANTIMONY AND POTASSIUM, TARTRATE OF.	Vegetable astringents; Stimulants.
ATROPINE.	BELLADONNA, STRAMONIUM, HYOSCYAMUS, MORPHINA, etc.; Stimulants.
BROMINE.	AQUA AMMONIÆ; FERRUM REDACTUM? FERRI OXIDUM HYDRATUM CUM MAGNESIA?
CHLORAL.	ATROPINA; STRYCHNINA; Stimulants, external and electrical.
CHLORINE.	White of egg; AQUA AMMONIÆ; ETHER; CONIUM; Stimulants.

Poisons.	*Antidotes.*
CHLOROFORM.	Stimulants; ALCOHOL, subcutaneously; AMYL NITRIS; Inversion, "head down;" Electricity.
CORROSIVE SUBLIMATE AND OTHER MERCURIC SALTS.	White of egg; Milk; Emetics.
DIGITALIS.	AQUA AMMONIÆ; ALCOHOL; ATROPINA.
GELSEMIUM.	MORPHINA; AQUA AMMONIÆ.
IODINE.	White of egg; Milk; AMYLUM.
LEAD, ACETATE OF.	Emetics; MAGNESIÆ SULPHAS; ACIDUM TANNICUM; Demulcents; Opiates.
LOBELIA.	Stimulants.
MUSCARIN, OR POISONOUS MUSHROOMS.	Emetics; ATROPINA.
NITRATE OF SILVER.	SODII CHLORIDUM.
NITROBENZOL.	Aqua ammoniæ; Oxygen by inhalation.
OPIUM, MORPHINE, ETC.	Emetics; Coffee; CAFFEINA; ATROPINA; Stimulants, external and electrical.
PHOSPHORUS.	CUPRI SULPHAS; OLEUM TEREBINTHINÆ, old or non-rectified.
POISON IVY.	AQUA AMMONIÆ; PLUMBI ACETAS; GRINDELIA.
PHYSOSTIGMA AND PHYSOSTIGMINE.	ATROPINA.
POTASSA, AND SODA.	Weak acids; ACIDUM ACETICUM; ACIDUM CITRICUM; Vinegar; Lemon-juice.
STRYCHNINE.	CHLOROFORM; CHLORAL; ÆTHER; POTASSII BROMIDUM; PHYSOSTIGMA; TABACUM; Artificial respiration; AMYL NITRIS.
VERATRUM VIRIDE.	MORPHINA; Stimulants.
ZINC, CHLORIDE OR SULPHATE OF.	SODII BICARBONAS; Demulcents.

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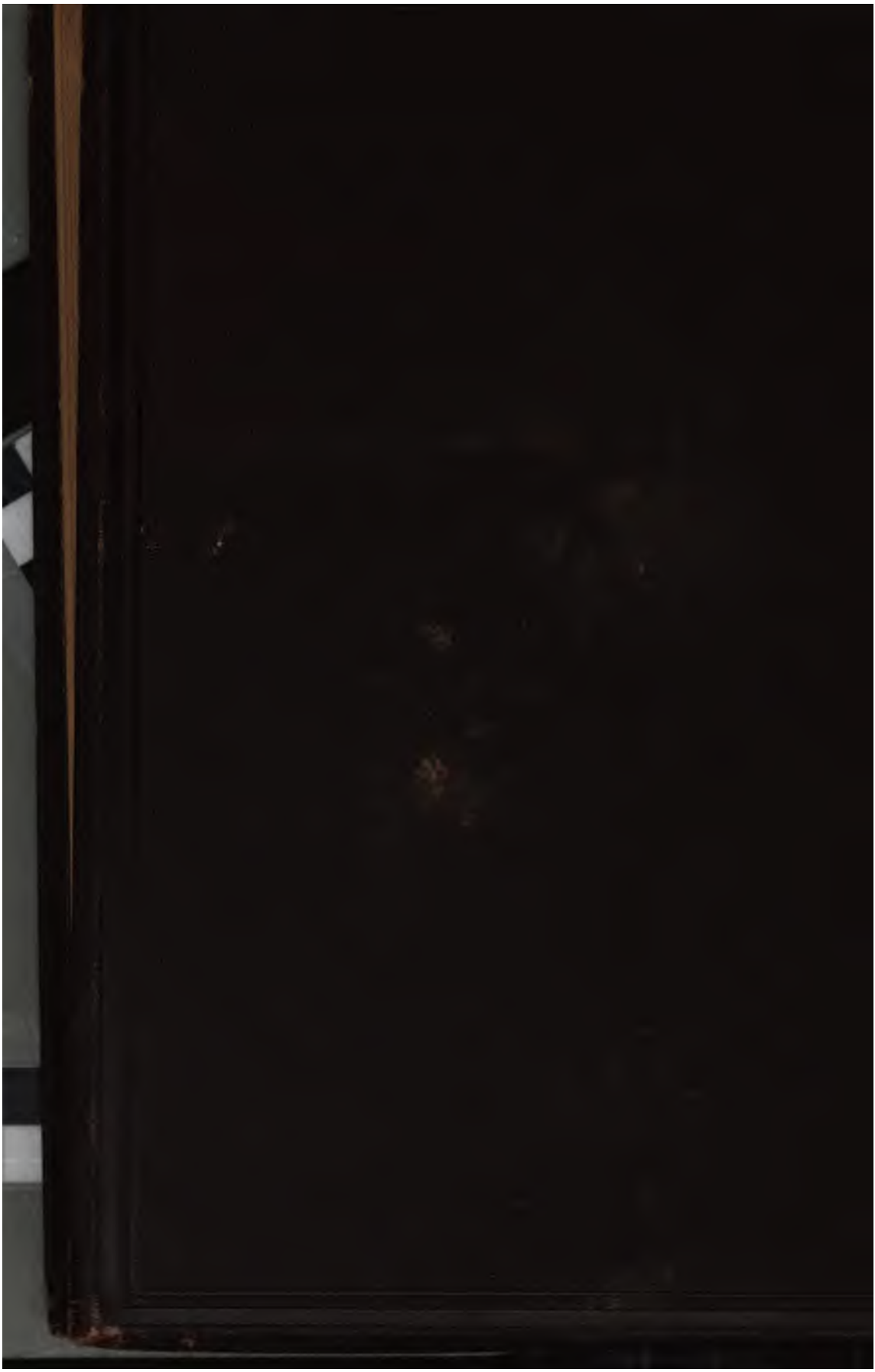
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